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Nevada
Environmental
Restoration
Project

National Nuclear Security Administration

Closure Report for Corrective Action Unit 121: Storage Tanks and Miscellaneous Sites, Nevada Test Site, Nevada

Controlled Copy No.:_____

Revision: 0

September 2008

Environmental Restoration
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U.S. Department of Energy
National Nuclear Security Administration
Nevada Site Office

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CLOSURE REPORT FOR CORRECTIVE ACTION UNIT 121: STORAGE TANKS AND MISCELLANEOUS SITES, NEVADA TEST SITE, NEVADA

U.S. Department of Energy
National Nuclear Security Administration
Nevada Site Office
Las Vegas, Nevada

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CLOSURE REPORT FOR CORRECTIVE ACTION UNIT 121: STORAGE TANKS AND MISCELLANEOUS SITES, NEVADA TEST SITE, NEVADA

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ACRONYMS AND ABBREVIATIONS

AST	aboveground storage tank
B	detected in trip blank
BMP	best management practice
CAS	Corrective Action Site
CAU	Corrective Action Unit
COC	contaminant of concern
CR	Closure Report
CSM	conceptual site model
D	diluted
EPA	U.S. Environmental Protection Agency
FAL	final action level
FFACO	*Federal Facility Agreement and Consent Order*
gal	gallon(s)
HW	hazardous waste
J	estimated
LT	less than requested detection limit but greater than method detection limit
mg/kg	milligram(s) per kilogram
MS/MSD	matrix spike/matrix spike duplicate
NBMG	Nevada Bureau of Mines and Geology
ND	not detected
NDEP	Nevada Division of Environmental Protection
NE	none established
NNSA/NSO	U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office
NNSA/NV	U.S. Department of Energy, National Nuclear Security Administration Nevada Operations Office
NTS	Nevada Test Site
PAL	preliminary action level
PCBs	polychlorinated biphenyls
pCi/g	picocuries(s) per gram
PRG	preliminary remediation goal

ACRONYMS AND ABBREVIATIONS (continued)

QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control
RCRA	*Resource Conservation and Recovery Act*
RPD	relative percent difference
SAFER	Streamlined Approach for Environmental Restoration
SDG	sample delivery group
SVOC	semi-volatile organic compound
TI	tentatively identified
TPH	total petroleum hydrocarbons
VOC	volatile organic compound
WMA	waste management area
yd^3	cubic yard(s)

EXECUTIVE SUMMARY

Corrective Action Unit (CAU) 121 is identified in the *Federal Facility Agreement and Consent Order* (FFACO) (1996, as amended February 2008) as Storage Tanks and Miscellaneous Sites. CAU 121 consists of the following three Corrective Action Sites (CASs) located in Area 12 of the Nevada Test Site, which is approximately 65 miles northwest of Las Vegas, Nevada.

- CAS 12-01-01, Aboveground Storage Tank
- CAS 12-01-02, Aboveground Storage Tank
- CAS 12-22-26, Drums; 2 AST's

CAU 121 closure activities were conducted according to the FFACO and the Streamlined Approach for Environmental Restoration Plan for CAU 121 (U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office, 2007). Field work took place from February through September 2008. Samples were collected to determine the path forward to close each site. Closure activities were completed as defined in the plan based on sample analytical results and site conditions.

No contaminants of concern (COCs) were present at CAS 12-01-01; therefore, no further action was chosen as the corrective action alternative. As a best management practice (BMP), the empty aboveground storage tank (AST) was removed and disposed as sanitary waste.

At CAS 12-01-02, polychlorinated biphenyls (PCBs) were present above the preliminary action level (PAL) in the soil beneath the AST that could possibly have originated from the AST contents. Therefore, PCBs were considered COCs, and the site was clean closed by excavating and disposing of soil containing PCBs. Approximately 5 cubic yards (yd^3) of soil were excavated and disposed as petroleum hydrocarbon PCB remediation waste, and approximately 13 yd^3 of soil were excavated and disposed as PCB remediation waste. Cleanup samples were collected to confirm that the remaining soil did not contain PCBs above the PAL. Other compounds detected in the soil above PALs (i.e., total petroleum hydrocarbons [TPH] and semi-volatile organic compounds [SVOCs]) were determined to not likely have originated from the tank. Additional sample results showed that the compounds were likely present as a result of degraded asphalt around the adjacent, active water tank and not from the abandoned AST; therefore, they were not considered COCs. As a BMP, the empty AST was removed and disposed as sanitary waste.

No COCs were present at CAS 12-22-26; therefore, no further action was chosen as the corrective action alternative. Although TPH was present at concentrations that exceeded the PAL, the volatile organic compound and SVOC hazardous constituents of TPH did not exceed the final action levels (FALs); therefore, TPH was not considered a COC. As a BMP, the empty AST was removed and disposed as sanitary waste.

Closure activities generated sanitary waste, petroleum hydrocarbon PCB remediation waste, PCB remediation waste, and hazardous waste. Waste was appropriately managed and disposed. Waste that is currently staged on site is being appropriately managed and will be disposed under approved waste profiles in permitted landfills. Waste minimization activities included waste characterization sampling and segregation of waste streams.

TABLE 1. SUMMARY OF CORRECTIVE ACTION UNIT 121 CLOSURE ACTIVITIES

CAS	CAS NAME	CLOSURE METHOD	CONTAMINANTS OF CONCERN	CLOSURE ACTIVITIES
12-01-01	Aboveground Storage Tank	Clean Closure	None	• Removed and disposed AST as sanitary waste • Sampled soil to confirm concentrations are less than action levels
12-01-02	Aboveground Storage Tank	Clean Closure	None	• Removed and disposed AST as sanitary waste • Collected soil characterization sample • Excavated and disposed contaminated soil as petroleum hydrocarbon PCB remediation waste or PCB remediation waste • Collected cleanup samples
12-22-26	Drums; 2 AST's	Clean Closure	Petroleum Hydrocarbons	• Sampled soil to confirm concentrations are less than action levels • Removed and disposed AST as sanitary waste

AST – aboveground storage tank
CAS – Corrective Action Site
PCB – polychlorinated biphenyl
TPH – total petroleum hydrocarbons

1.0 INTRODUCTION

This Closure Report (CR) documents closure activities for Corrective Action Unit (CAU) 121, Storage Tanks and Miscellaneous Sites, according to the *Federal Facility Agreement and Consent Order* (FFACO) (1996, as amended February 2008) and the Streamlined Approach for Environmental Restoration (SAFER) Plan (U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office [NNSA/NSO], 2007). CAU 121 consists of the following three Corrective Action Sites (CASs) located in Area 12 of the Nevada Test Site (NTS) (Figure 1):

- CAS 12-01-01, Aboveground Storage Tank
- CAS 12-01-02, Aboveground Storage Tank
- CAS 12-22-26, Drums; 2 AST's

1.1 PURPOSE

CAU 121, Storage Tanks and Miscellaneous Sites, consists of three CASs located in Area 12 of the NTS. No further action with implementation of best management practices (BMPs) was the corrective action alternative chosen for CASs 12-01-01 and 12-22-26, and clean closure was the corrective action alternative chosen for CAS 12-01-02. The purpose of this CR is to provide a summary of the completed closure activities, documentation of waste disposal, and analytical data to confirm that the remediation goals were met.

1.2 SCOPE

The closure strategy for CAU 121 was as follows:

- CAS 12-01-01, Aboveground Storage Tank, consisted of one empty aboveground storage tank (AST) and associated impacted soil, if any. No contaminants of concern (COCs) were present; therefore, no further action was chosen as the corrective action alternative. As a best management practice (BMP), the empty AST was removed and disposed as sanitary waste.
- CAS 12-01-02, Aboveground Storage Tank, consisted of one empty AST and associated impacted soil, if any. Sample results showed that polychlorinated biphenyls (PCBs) exceeded the preliminary action level (PAL) in the soil beneath the AST. PCBs could possibly have originated from the AST contents; therefore, PCBs were considered COCs, and clean closure was chosen as the corrective action alternative. Approximately 5 cubic yards (yd^3) of soil were excavated and disposed as petroleum hydrocarbon PCB remediation waste, and approximately 13 yd^3 of soil were disposed as PCB remediation waste. Cleanup samples were collected to confirm that the remaining soil did not contain PCBs above the PAL. Benzo(a)pyrene, dibenz(a,h)anthracene, and total petroleum hydrocarbons (TPH) were also present above the PALs. Sample results indicated that the degraded asphalt adjacent to the site and surrounding the Area 12 Camp water tank was the likely source of these compounds; therefore, they were not considered COCs. As a BMP, the empty AST was removed and disposed as sanitary waste.

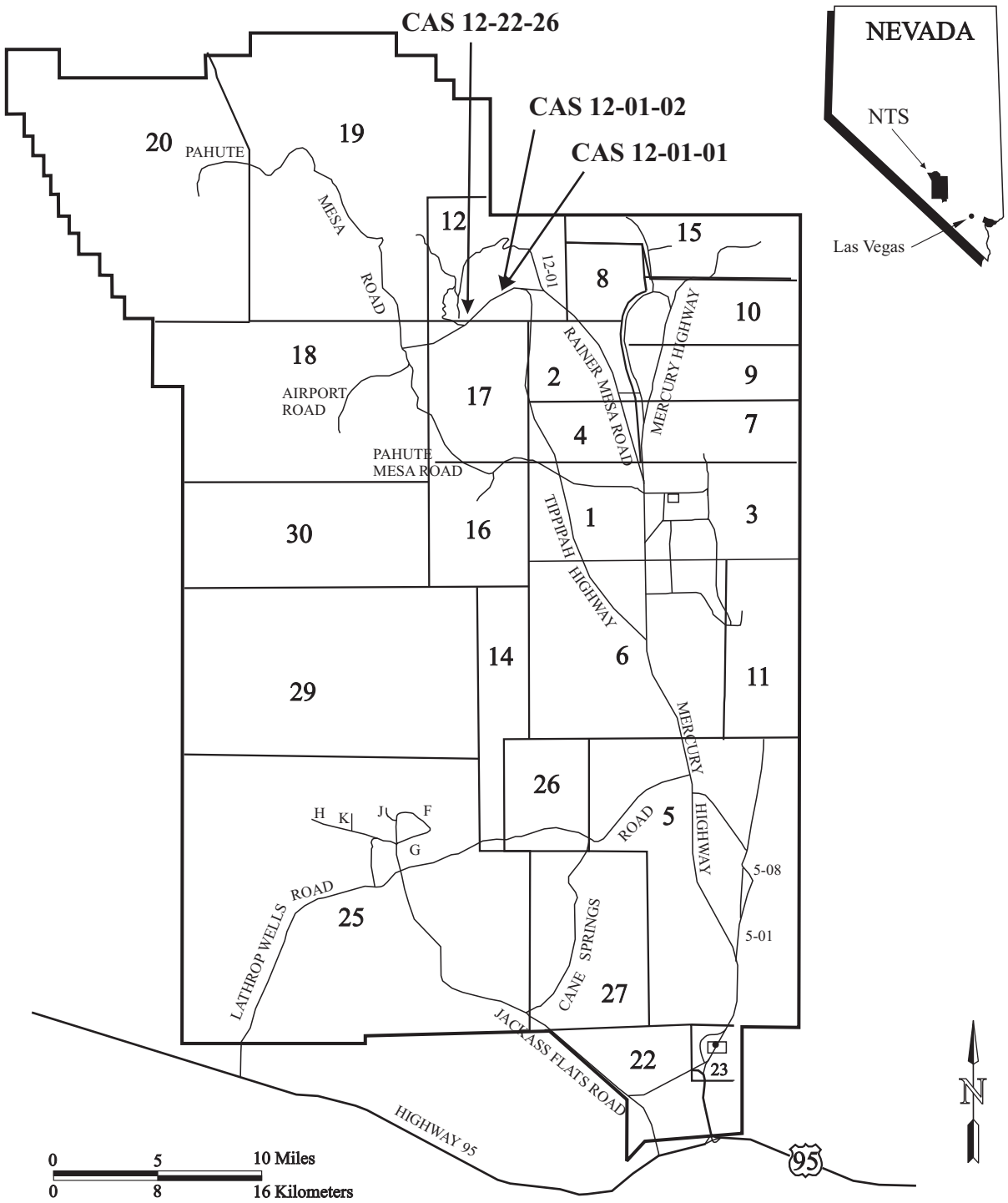

FIGURE 1
CORRECTIVE ACTION UNIT 121 SITE LOCATION MAP

- CAS 12-22-26, Drums; 2 AST's, consists of two areas. The first area, the drum area, consisted of soil in an area where drums of unknown contents or condition had previously been stored. The second area, the tank area, consisted of an AST and associated impacted soil, if any. Sample results showed that TPH exceeded the PAL in both the drum area and the tank area; however, the volatile organic compound (VOC) and semi-volatile organic compound (SVOC) hazardous constituents of TPH did not exceed the final action levels (FALs). Therefore, TPH was not considered a COC, and no further action was chosen as the corrective action alternative. As a BMP, the empty AST was removed and disposed as sanitary waste.

1.3 CLOSURE REPORT CONTENTS

This CR includes the following sections:

- Section 1.0 – Introduction
- Section 2.0 – Closure Activities
- Section 3.0 – Waste Disposition
- Section 4.0 – Closure Verification Results
- Section 5.0 – Conclusions and Recommendations
- Section 6.0 – References
- Appendix A – Data Quality Objectives
- Appendix B – Sample Analytical Results
- Appendix C – Waste Disposition Documentation
- Appendix D – Site Closure Photographs
- Appendix E – Nevada Division of Environmental Protection Comment Response Form
- Library Distribution List

This report was developed using information and guidance from the following documents:

- SAFER Plan for CAU 121 (NNSA/NSO, 2007)
- *Industrial Sites Quality Assurance Project Plan* (QAPP) (U.S. Department of Energy, National Nuclear Security Administration Nevada Operations Office [NNSA/NV], 2002)

Data quality objectives developed for site characterization of CAU 121 are presented in the CAU 121 SAFER Plan (NNSA/NSO, 2007). Conceptual site models (CSMs) were developed for CAU 121 based on process knowledge, historical information, and personnel interviews. No variations to the CSM were identified. The following CSMs were confirmed through inspections, sample collection and analysis, and excavation activities:

- At CAS 12-01-01, the primary CSM of no release greater than action levels was confirmed.
- At CAS 12-01-02, the alternate CSM of a possible release from the tank was confirmed.

- At CAS 12-22-26, the primary CSM of no release greater than FALs was confirmed for the drum area, and the alternate CSM of no release greater than the FALs was confirmed for the tank area.

2.0 CLOSURE ACTIVITIES

This section details the specific activities completed during the closure of CAU 121, deviations from the SAFER Plan, the schedule of completed activities, and the final site plan. Photographs in Appendix D document the conditions of the sites before corrective actions were implemented, while field work was in progress, and after completion of work.

2.1 DESCRIPTION OF CORRECTIVE ACTION ACTIVITIES

Closure activities for CAU 121 were completed according to the SAFER Plan (NNSA/NSO, 2007). The following sections detail the closure activities as completed.

2.1.1 Preplanning and Site Preparation

Prior to closure activities, the following documents were prepared:

- *National Environmental Policy Act* Checklist
- Site-Specific Health and Safety Plans
- Field Management Plan
- NNSA/NSO Real Estate/Operations Permits
- Work control packages

2.1.2 Closure Activities

The following sections detail the closure activities completed at each CAS.

2.1.2.1 Corrective Action Site 12-01-01, Aboveground Storage Tank

This site, located in Area 12 near the Area 12 Camp, consisted of one 650-gallon (gal) AST and soil below the AST that may have been impacted by the AST contents. Staining was not observed, and the tank was not rusted through. One soil sample and a field duplicate were collected from below the open tank port, which was considered to be the most likely location for contamination of the soil (Figure 2). The samples were analyzed for VOCs, SVOCs, *Resource Conservation and Recovery Act* (RCRA) metals, PCBs, TPH, gross alpha and beta, and gamma emitters.

Sample analytical results showed all concentrations to be less than the PALs with the exception of arsenic (Table 2). Arsenic was detected in the sample and the field duplicate at concentrations of 2.6 and 3.0 milligrams per kilogram (mg/kg), respectively, which exceeds the U.S. Environmental Protection Agency (EPA) Region IX preliminary remediation goal (PRG) (EPA, 2004) of 1.65 mg/kg. However, the natural background concentration of arsenic in soil at the NTS exceeds the PRG. The FAL for arsenic is therefore established as the natural background concentration, 23 mg/kg, which is calculated as the mean plus two times the standard deviation of the mean for sediment samples collected by the Nevada Bureau of Mines and Geology (NBMG) throughout the Nevada Test and Training Range (formerly the Nellis Air Force Range)

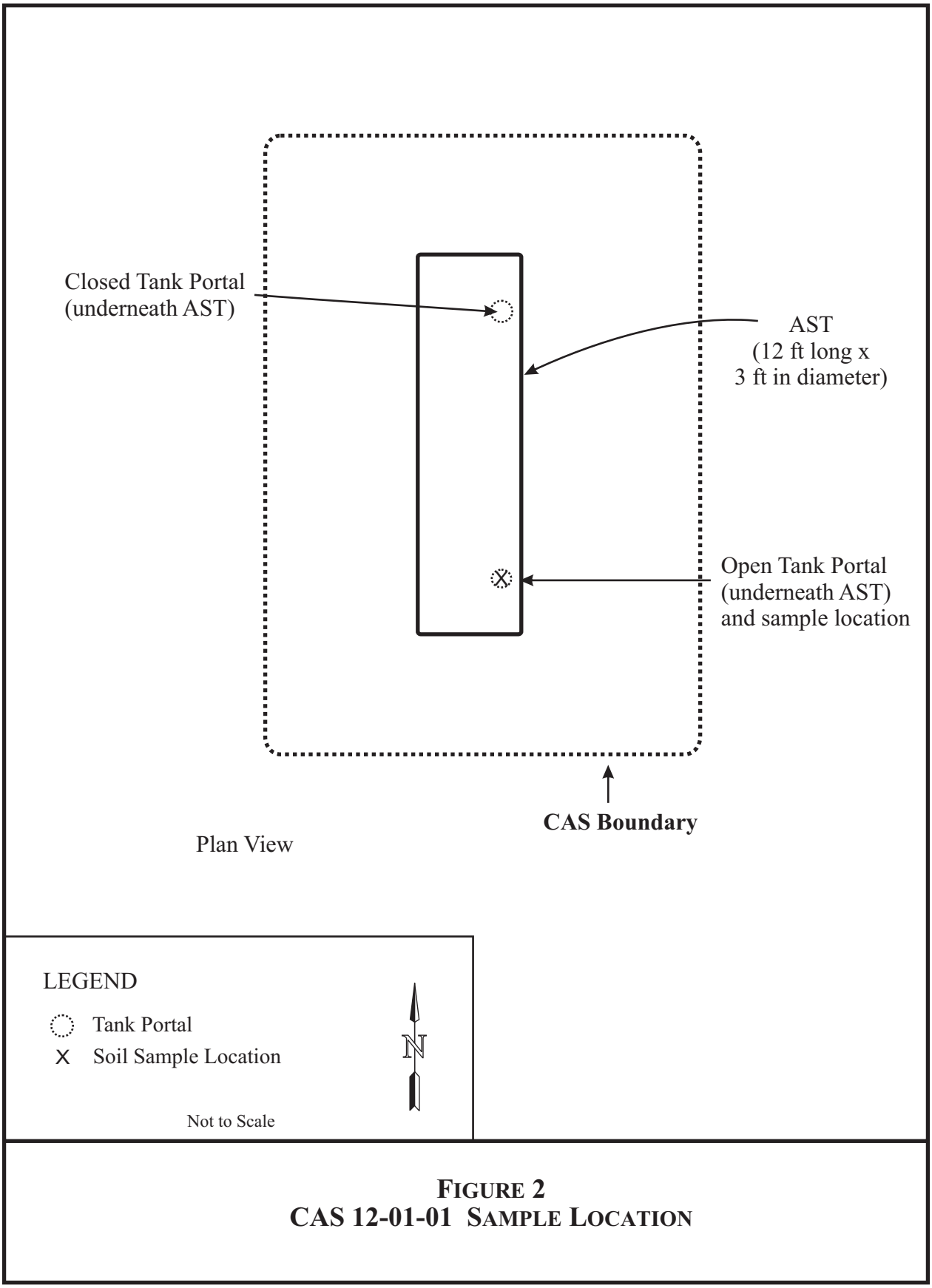

FIGURE 2
CAS 12-01-01 SAMPLE LOCATION

TABLE 2. CAS 12-01-01 CHARACTERIZATION SAMPLE ANALYTICAL RESULTS

CONTAMINANTS OF POTENTIAL CONCERN	CONCENTRATION		
	PAL	SAMPLE # 120101-1	SAMPLE # 120101-2
VOCs (mg/kg)			
Methylene Chloride	21	0.024 (B)	0.015 (B)
SVOCs (mg/kg)			
Bis(2-Ethylhexyl)phthalate	120	0.035 (J)	0.032 (J)
RCRA Metals (mg/kg)			
Arsenic	**1.65**	**2.6**	**3**
Barium	67,000	123	128
Cadmium	450	0.37 (LT)	0.38 (LT)
Chromium	450	3.9	4.4
Lead	800	9.4	14.2
TPH (mg/kg)			
Diesel-Range Organics	NE	21	3.1 (J)
Oil-Range Organics	NE	54	15
TPH	100	75	18
Radiological (pCi/g)			
Gross alpha	NE	6.46	4.76
Gross beta	NE	10.5	10.8
Cesium-137	12.2	1.27	0.951 (LT)
Thorium-234	143	3.07 (TI)	3.36

B – detected in trip blank at 4 micrograms per liter
J – estimated
LT – less than requested detection limit but greater than method detection limit. The laboratory report for RCRA metals (in Appendix B) uses a "B" for this flag.
mg/kg – milligram(s) per kilogram
ND – not detected above detection limit
NE – none established
PAL – preliminary action level
pCi/g – picocuries(s) per gram
RCRA – *Resource Conservation and Recovery Act*
SVOCs – semi-volatile organic compounds
TI – tentatively identified
TPH – total petroleum hydrocarbons
VOCs – volatile organic compounds

(NBMG, 1998; Moore, 1999). The concentration of arsenic is below the FAL; therefore, arsenic is not a COC for this site. An evaluation of the data quality is provided in Section 4.0, and laboratory data summary reports are included in Appendix B.

No further action was chosen as the corrective action alternative. As a BMP, the tank was removed and disposed as sanitary waste at the Area 9 U10c Industrial Landfill. Waste disposition documentation is provided in Appendix C.

2.1.2.2 Corrective Action Site 12-01-02, Aboveground Storage Tank

This site, located near the water supply tanks for the Area 12 Camp, consisted of one 140-gal AST and soil below the AST that may have been impacted by the AST contents. Radiological field screening showed no indication of elevated radioactivity. Staining was not observed, and the tank was not rusted through; however, there were numerous tank openings from which AST contents could have been released to the soil (Figure 3). One sample was collected from below the open tank portal that was the lowest tank opening and the most likely location for a release from the AST. The sample was analyzed for VOCs, SVOCs, PCBs, RCRA metals, TPH, gross alpha and beta, and gamma emitters. The tank was removed and disposed as sanitary waste at the Area 9 U10c Industrial Landfill.

Characterization analytical results greater than the detection limits are presented in Table 3. VOCs and radiological compounds were less than the PALs. RCRA metals were less than the PALs with the exception of arsenic, which was at concentrations consistent with local native soil conditions (see Section 2.1.2.1). The PALs were exceeded for oil-range petroleum hydrocarbons and SVOCs (i.e., benzo(a)pyrene and dibenz(a,h)anthracene). PCBs, at 0.96 mg/kg, were less than the PAL of 1 mg/kg; however, the actual PCB concentration could be greater than the PAL because of low recovery in the spiked sample. Oil-range petroleum hydrocarbons, benzo(a)pyrene, dibenz(a,h)anthracene, and PCBs were therefore the target compounds for additional investigation and/or cleanup.

Phase 1 cleanup activities took place in June 2008. Approximately 5 yd^3 of soil were excavated down to a hard layer of volcanic tuff that was encountered from 6 inches to several feet below the ground surface. Based on characterization results, the excavated soil met the criteria for disposal at the Area 9 U10c Industrial Landfill and was disposed as petroleum hydrocarbon PCB remediation waste. Six cleanup samples were collected from the base and sides of the excavation (Figure 4) and analyzed for SVOCs, TPH, and PCBs (Table 4). TPH and dibenz(a,h)anthracene were less than the PALs. PCBs (1.1 mg/kg Aroclor 1254) and benzo(a)pyrene (0.23 mg/kg) were still present at concentrations greater than the PALs (1.0 and 0.21 mg/kg, respectively) at sample location 120102-V4, on the east side of the excavation.

Dibenz(a,h)anthracene and benzo(a)pyrene were less than the detection limit in several samples; however, the detection limit (0.350 mg/kg) was greater than the PAL for these compounds. The analytical laboratory was contacted to review the data and determine whether these compounds were present at concentrations greater than the 0.210 mg/kg PAL. The laboratory responded that if either of these two compounds was present at concentrations at or above 0.210 mg/kg, they would have been detected and flagged as an estimated value ("J"). The absence of this flag indicates that they were not present above the PAL. Updated reports could not be provided because the sample hold times had been exceeded when this was found.

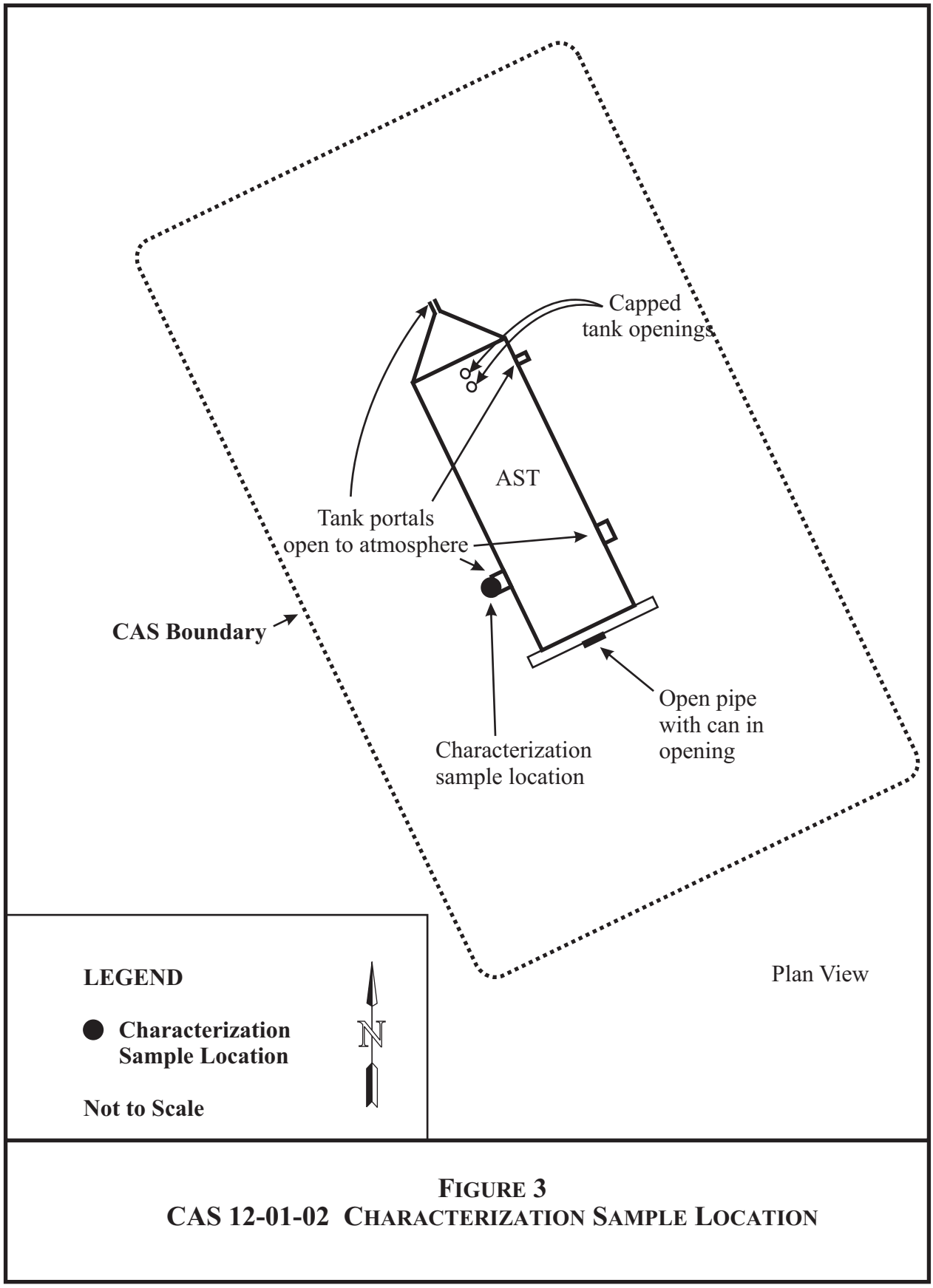

FIGURE 3
CAS 12-01-02 CHARACTERIZATION SAMPLE LOCATION

TABLE 3. CAS 12-01-02 CHARACTERIZATION SAMPLE ANALYTICAL RESULTS

CONTAMINANTS OF POTENTIAL CONCERN	CONCENTRATION	
	PAL	SAMPLE # 120102-1
VOCs (mg/kg)		
Methylene Chloride	21	0.014 (B)
SVOCs (mg/kg)		
Acenaphthene	29,000	0.12 (J)
Anthracene	100,000	0.17 (J)
Benzo(a)antrhacene	21	1.6
Benzo(b)fluoranthene	2.1	1.1
Benzo(k)fluoranthene	21	1.4
Benzo(g,h,i)perylene	NE	0.88
Benzo(a)pyrene	**0.21**	**1.5**
bis(2-Ethylhexyl)phthalate	120	0.066 (J)
Butylbenzylphthalate	100,000	0.97
Carbazole	86	0.15 (J)
Chrysene	0.21	2.0
Dibenz(a,h)anthracene	**0.21**	**0.39**
Di-n-butylphthalate	62,000	0.044 (J)
Fluoranthene	22,000	3.8 (D)
Fluorene	26,000	0.046 (J)
Indeno(1,2,3-cd)pyrene	2.1	0.87
Phenanthrene	NE	1.3
Pyrene	29,000	4.4 (D)
RCRA Metals (mg/kg)		
Arsenic	**1.65**	**1.9 (LT)**
Barium	67,000	124
Cadmium	450	0.2 (LT)
Chromium	450	2.4
Lead	800	24.1

TABLE 3. CAS 12-01-02 CHARACTERIZATION SAMPLE ANALYTICAL RESULTS (CONTINUED)

CONTAMINANTS OF POTENTIAL CONCERN	CONCENTRATION	
	PAL	SAMPLE # 120102-1
TPH (mg/kg)		
Diesel-range organics	NE	60
Oil-range organics	NE	110
TPH	**100**	**170**
PCBs (mg/kg)		
Aroclor 1254	NE	0.67
Aroclor 1260	NE	0.29
PCBs	**1**	**0.96**
Radiological (pCi/g)		
Gross alpha	NE	6.42
Gross beta	NE	7.7
Cs-137	12.2	0.196 (LT)
Th-234	143	2.27

B – detected in trip blank at 4 micrograms per liter
D – diluted
J – estimated
LT – less than requested detection limit but greater than method detection limit. The laboratory report for RCRA metals (in Appendix B) uses a "B" for this flag.
mg/kg – milligram(s) per kilogram
NE – none established
PCBs – polychlorinated biphenyls
pCi/g – picocuries(s) per gram
RCRA – *Resource Conservation and Recovery Act*
SVOCs – semi-volatile organic compounds
TI – tentatively identified
TPH – total petroleum hydrocarbons
VOCs – volatile organic compounds

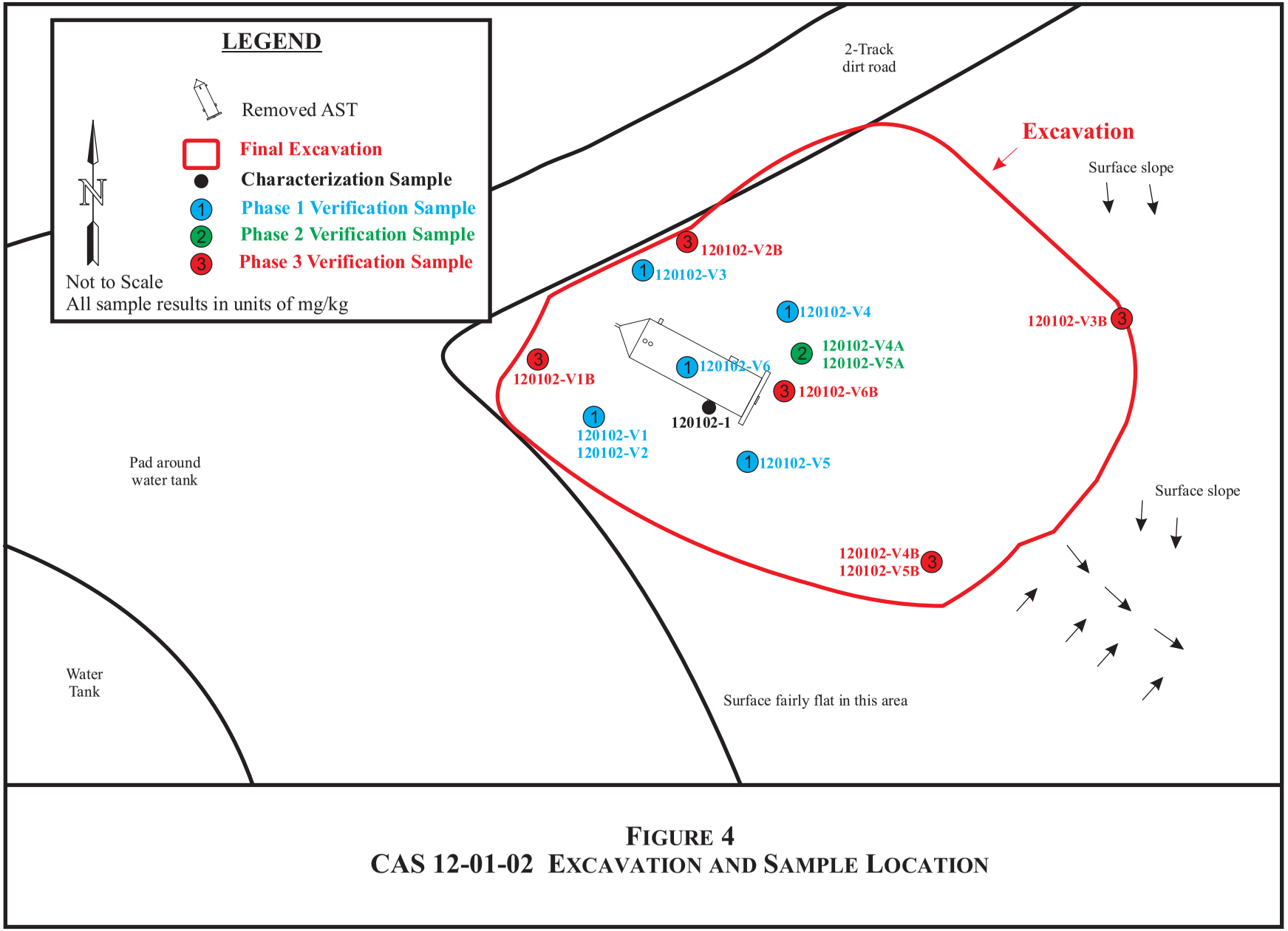

FIGURE 4
CAS 12-01-02 EXCAVATION AND SAMPLE LOCATION

TABLE 4. CAS 12-01-02 PHASE 1 CLEANUP SAMPLE ANALYTICAL RESULTS

CONTAMINANTS OF CONCERN	CONCENTRATION (MG/KG)						
	PAL	SAMPLE # 120102-V1	SAMPLE # 120102-V2	SAMPLE # 120102-V3	SAMPLE # 120102-V4	SAMPLE # 120102-V5	SAMPLE # 120102-V6
Benzo(a)pyrene	**0.21**	0.023 (J)	0.026 (J)	**<0.35**	**0.23 (J)**	0.12 (J)	**<0.35**
Dibenz(a,h)anthracene	**0.21**	**<0.35**	**<0.35**	**<0.35**	0.049 (J)	0.032 (J)	**<0.35**
TPH (all detects oil-range)	100	6.1 (J)	7.0 (J)	8.1 (J)	68	14	6.9 (J)
PCBs (all as Aroclor 1254)	**1**	0.034	0.048	0.027	**1.1**	0.120	0.032

COC – contaminant of concern
J – estimated
mg/kg – milligram(s) per kilogram
PCBs – polychlorinated biphenyls
TPH – total petroleum hydrocarbons

On June 19, 2008, phase 2 cleanup activities were conducted. Approximately 8 yd^3 of soil were excavated from the eastern corner of the existing excavation (in the vicinity of the 120102-V4 sample). Excavated soil met the criteria for disposal at the Area 9 U10c Industrial Landfill and was disposed as PCB remediation waste. One cleanup sample and a field duplicate were collected from the base of the excavation (Figure 4) and analyzed for dibenz(a,h)anthracene, benzo(a)pyrene, and PCBs (Table 5). PCBs and dibenz(a,h)anthracene were less than the PALs. However, benzo(a)pyrene (0.260 mg/kg) remained at concentrations greater than the PAL.

On July 10, 2008, phase 3 cleanup activities were conducted. Approximately 5 yd^3 of soil were excavated to the east of the original excavation and down to the volcanic tuff layer. Excavated soil met the criteria for disposal at the Area 9 U10c Industrial Landfill and was disposed as PCB remediation waste. The excavation was approximately 20 feet across from east to west and 18 feet across from north to south. Six cleanup samples were collected from the base and sides of the excavation (Figure 4) and analyzed for dibenz(a,h)anthracene, benzo(a)pyrene, and TPH (Table 6). TPH was below the PAL. Dibenz(a,h)anthracene and benzo(a)pyrene remained at concentrations greater than the PALs on the east and south sides of the excavation.

The slope of the volcanic tuff was planar and to the south, as illustrated in Photograph 8 in Appendix D. The samples collected on the eastern edge of the excavation were at approximately the same elevation as the characterization sample collected from below the AST (120102-V6), indicating that the contamination did not likely originate from the tank. Additionally, the concentrations of SVOCs on the eastern edge of the excavation are as high as or higher than their concentrations in the characterization sample collected from below the AST. A more critical evaluation of the analytical results and other potential sources in the area was performed.

The excavation was adjacent to the Area 12 Camp water tanks. Closer investigation of the area revealed the presence of a black material that appeared to be a tar sealant (Figure 5) and a black granular material that may have been degraded paving material (Figure 6) consistent with asphalt-type material ubiquitous around the NTS. Dibenz(a,h)anthracene and benzo(a)pyrene are known components of asphalt (Irwin, 1997; U.S. Department of Health and Human Services, 2005; EPA, 2008). In addition, background samples of asphalt material collected during CAU 219 corrective action investigation activities contained dibenz(a,h)anthracene and benzo(a)pyrene (NNSA/NSO, 2006a). Based on CAU 219 sample results and the pervasive nature of this material in the vicinity of CAS 12-01-02, the determination was made that the source of the compounds is likely asphalt-type material. Asphalt does not require corrective action, and TPH and SVOCs that were associated with the asphalt are not considered COCs for this site.

Although the source of the PCBs is unknown, they may have originated from the AST and have been considered COCs for this site. The excavation activities have been successful in removing PCBs that exceed the PAL; therefore, the site has been clean closed. The excavation was backfilled with clean soil. The backfilled area is shown in Photograph 9 in Appendix D. Waste disposition documentation for the tank and excavated soil is provided in Appendix C. An evaluation of the data quality is provided in Section 4.0, and laboratory data summary reports are included in Appendix B.

TABLE 5. CAS 12-01-02 PHASE 2 CLEANUP SAMPLE ANALYTICAL RESULTS

CONTAMINANTS OF CONCERN	CONCENTRATION (MG/KG)		
	PAL	SAMPLE # 120102-V4A	SAMPLE # 120102-V5A
Benzo(a)pyrene	**0.21**	**0.260**	**0.260**
Dibenz(a,h)anthracene	0.21	0.056 (J)	0.065 (J)
PCBs (all as Aroclor 1254)	1	0.430	0.200

COC – contaminant of concern
J – estimated
mg/kg – milligram(s) per kilogram
PCBs – polychlorinated biphenyls

TABLE 6. CAS 12-01-02 PHASE 3 CLEANUP SAMPLE ANALYTICAL RESULTS

CONTAMINANTS OF CONCERN	CONCENTRATION (MG/KG)						
	PAL	SAMPLE # 120102-V1B	SAMPLE # 120102-V2B	SAMPLE # 120102-V3B	SAMPLE # 120102-V4B	SAMPLE # 120102-V5B	SAMPLE # 120102-V6B
Benzo(a)pyrene	**0.21**	<0.18	0.020 (J)	**0.78**	**0.57**	**0.47**	0.035 (J)
Dibenz(a,h)anthracene	**0.21**	<0.18	<0.17	**0.27**	0.19	0.15 (J)	<0.17
TPH (all detects oil-range)	**100**	ND	8.8 (J)	68	83	98	12

COC – contaminant of concern
J – estimated
mg/kg – milligram(s) per kilogram
ND – not detected above detection limit (detection limit significantly less than action level)
PCBs – polychlorinated biphenyls
TPH – total petroleum hydrocarbons

FIGURE 5. TAR SEALANT-LIKE MATERIAL NEAR AREA 12 CAMP WATER TANKS, 07/07/2008

FIGURE 6. ASPHALT-LIKE MATERIAL NEAR AREA 12 CAMP WATER TANKS, 07/07/2008

2.1.2.3 Corrective Action Site 12-22-26, Drums; 2 AST's

This site, located on the muckpile at the entrance to G-Tunnel in Area 12, consisted of one 1,800-gal AST, soil below the AST at two operational locations, and soil where drums were previously located near the AST.

Field screening and visual observations showed no indication of contamination. The most likely cause for AST-related releases would have been spills during filling of and dispensing from the tank. These operations would have taken place near the ends of the tank.

2.1.2.3.1 Drum Area

In the drum area, there were no biasing factors to indicate the presence of contamination, and drums were no longer present. Soil samples were collected from the grid locations identified by the Visual Sampling Program modeling software (Pacific Northwest National Laboratory, 2005) and as described in the SAFER Plan (NNSA/NSO, 2007) (Figure 7). Samples were analyzed for VOCs, SVOCs, RCRA metals, PCBs, TPH, gross alpha and beta, and gamma emitters.

Soil sample analytical results show VOCs, SVOCs, PCBs, and radiological compounds to be less than the PALs (Table 7). The only RCRA metal that exceeded the PAL was arsenic, and arsenic concentrations were consistent with local native soil concentrations (see Section 2.1.2.1). The only other contaminant exceeding PALs in the drum area was TPH, predominantly in the oil range.

2.1.2.3.2 Tank Area

In the tank area, soil samples were collected from locations most likely to have been impacted by releases from the tank. Soil samples were collected from where the ends of the tank would have been when the tank was located on both the north and the south sides of the train tracks (Figure 7). One additional soil sample was collected from where the tank had been temporarily stored when no longer in use, to the north of the tank area. Samples were analyzed for TPH.

TPH exceeded the PAL in three samples at the former operational area to the south of the train tracks and at the temporary tank storage location (Table 8, Figure 8). TPH concentrations at the former operational area to the north of the train tracks were less than the PAL. Petroleum hydrocarbons were in the oil range and similar to the drum area.

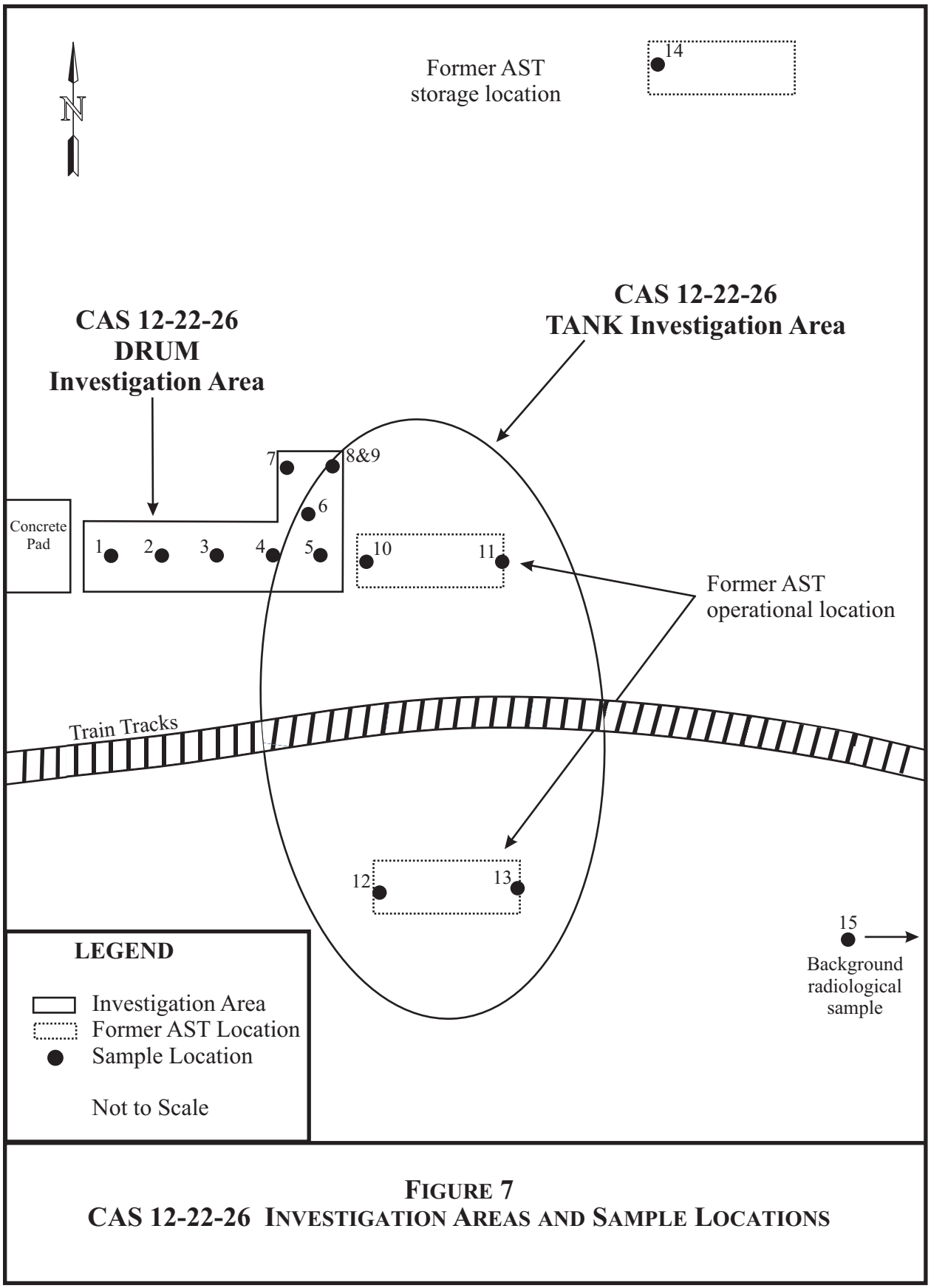

FIGURE 7
CAS 12-22-26 INVESTIGATION AREAS AND SAMPLE LOCATIONS

TABLE 7. CAS 12-22-26 DRUM AREA CHARACTERIZATION SAMPLE ANALYTICAL RESULTS

CONTAMINANTS OF POTENTIAL CONCERN	CONCENTRATION									
	PAL	SAMPLE NUMBERS 122226-								
		1	2	3	4	5	6	7	8	9
VOCs (mg/kg)										
Methylene Chloride	21	0.005 (B)	0.006 (B)	0.006 (B)	0.006 (B)	0.005 (B)	0.005 (B)	0.007 (B)	0.007 (B)	0.006 (B)
SVOCs (mg/kg)										
bis(2-Ethylhexyl)phthalate	120	0.120 (JB)	0.046 (JB)	0.022 (JB)	0.046 (JB)	0.052 (JB)	0.025 (JB)	0.042 (JB)	0.043 (JB)	0.020 (JB)
RCRA Metals (mg/kg)										
Arsenic	**1.65**	**2.1**	1.2	1.1	**3.2**	1.1	0.94	**2.3**	**1.9**	**1.7**
Barium	67,000	163	132	126	237	128	125	271	212	153
Cadmium	450	0.25	0.06	0.09	0.25	0.14	0.11	0.17	0.16	0.1
Chromium	450	4.2	3.2	2.7	9.2	2.9	2.7	3.5	3.1	2.7
Lead	800	14.1	11.9	11.2	18.3	11.6	16.6	18	19.2	12.4
TPH (mg/kg)										
Diesel-Range	NE	33	ND	ND	940	ND	ND	ND	ND	ND
Oil-Range	NE	95	22	440	2,600	37	9.2	44	41	48
TPH	**100**	**128**	22	**440**	**3,540**	37	9.2	44	41	48
PCBs (mg/kg)										
PCBs (all as Aroclor 1260)	1	0.0048 (J)	ND	0.0065 (J)	0.0057 (J)	ND	ND	ND	0.0041 (J)	ND
Radiological (pCi/g)										
Gross alpha	NE	3.58 (LT)	6.76	3.19 (LT)	4.80 (LT)	8.27	4.04 (LT)	16.6	7.81	5.55
Gross beta	NE	7.56 (LT)	6.58 (LT)	7.33 (LT)	8.41 (LT)	9.06 (LT)	6.83 (LT)	15.9	14.3	13.9
Americium-241	12.7	ND	ND	ND	ND	ND	ND	2.2	ND	ND
Cesium-137	12.2	ND	ND	ND	0.485 (LT)	0.212 (LT)	0.149 (LT)	10.5	7.65	7.37
Thorium-234	143	ND	ND	ND	ND	ND	1.61	3.90 (TI)	ND	ND

B – detected in trip blank
J – estimated
LT – less than requested detection limit but greater than method detection limit.
mg/kg – milligram(s) per kilogram
ND – not detected
NE – none established
PAL – preliminary action level
PCBs – polychlorinated biphenyls
pCi/g – picocuries(s) per gram
RCRA – *Resource Conservation and Recovery Act*
SVOCs – semi-volatile organic compounds
TI – tentatively identified
TPH – total petroleum hydrocarbons
VOCs – volatile organic compounds

TABLE 8. CAS 12-22-26 TANK AREA CHARACTERIZATION SAMPLE ANALYTICAL RESULTS

CONTAMINANTS OF POTENTIAL CONCERN	CONCENTRATION (MG/KG)					
		SAMPLE NUMBERS 122226-				
	PAL	10	11	12	13	14
TPH (oil-range)	**100**	31	13	**210**	**210**	**250**

mg/kg – milligram(s) per kilogram
PAL – preliminary action level
TPH – total petroleum hydrocarbons

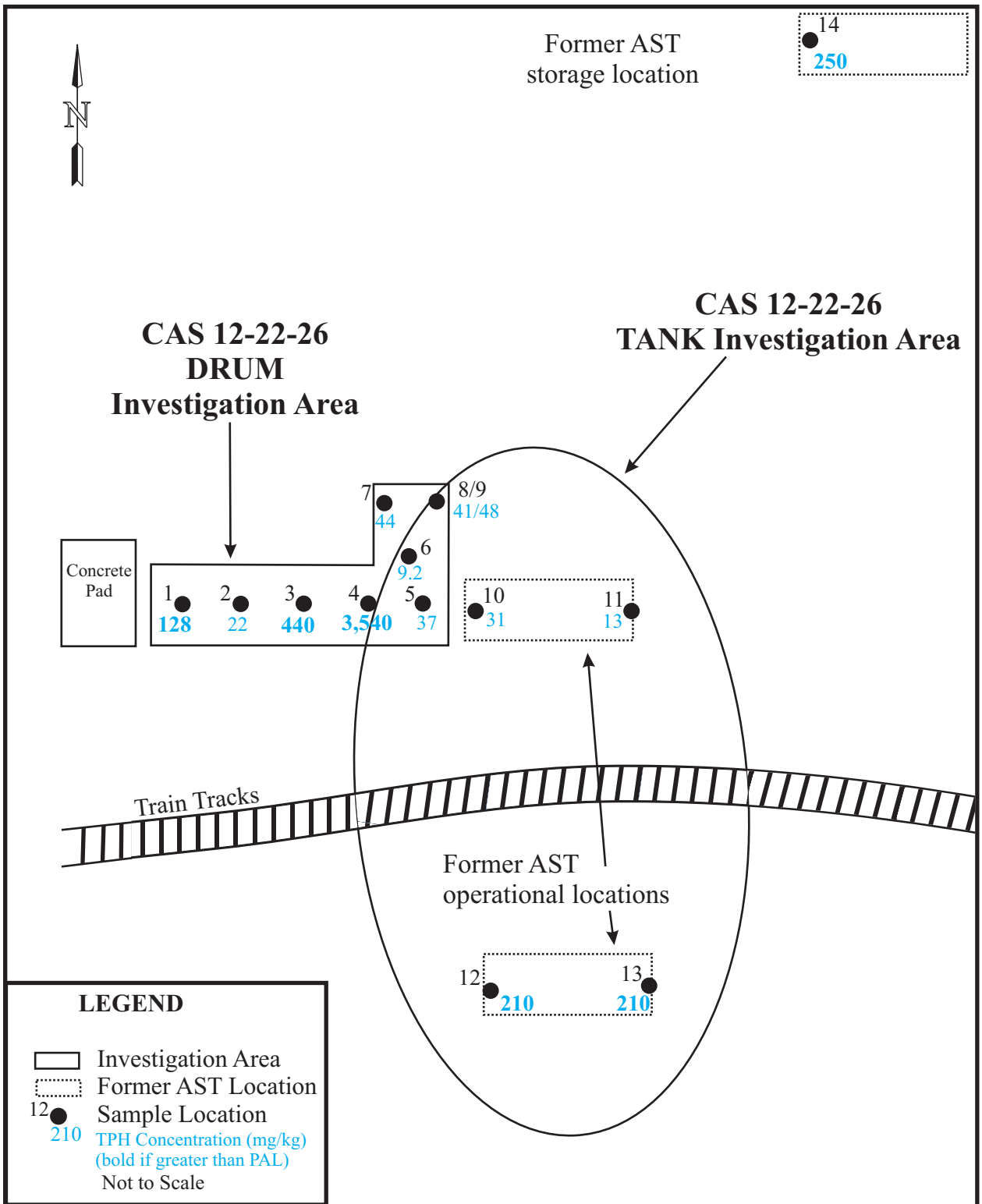

FIGURE 8
CAS 12-22-26 TPH RESULTS

2.1.2.3.3 Evaluation of CAS 12-22-26 Results

TPH results are presented in Figure 8. Analytical results indicated that TPH, predominantely in the oil range, was present in both areas. In accordance with the *Industrial Sites Project Establishment of Final Action Levels* document (NNSA/NSO, 2006b), where TPH results exceed the 100 mg/kg PAL, a risk-based evaluation was conducted by individually evaluating the risk posed by the specific hazardous constituents of TPH. The hazardous constituents in motor oil are similar to diesel, although of lesser concentrations. The industrial PRGs for the hazardous constituents of diesel were therefore used as the site-specific FALs for this site.

Table 9 presents the VOC and SVOC hazardous constituents of diesel, the associated industrial PRGs for those constituents (i.e., the EPA Region IX PRGs), and the analytical results for soil sample 122226-4. The concentrations of VOCs and SVOCs in sample 122226-4 were compared with the PRGs to evaluate whether concentrations at the site exceed FALs. This sample was used because it had the highest TPH concentration of all the samples at this CAS. As indicated in Table 9, FALs were not exceeded for any of the hazardous constituents.

No further action was chosen as the corrective action alternative. As a BMP, the tank was removed and disposed as sanitary waste at the Area 9 U10c Industrial Landfill. Waste disposition documentation is provided in Appendix C. An evaluation of the sample data is included in Section 4.0, and laboratory data summary reports are included in Appendix B.

2.2 DEVIATIONS FROM THE SAFER PLAN AS APPROVED

The SAFER Plan (NNSA/NSO, 2007) calls for a use restriction to be implemented if concentrations in the soil exceeding the PAL are not removed. TPH exceeded the PAL at CAS 12-22-26; however, the hazardous constituents of diesel did not exceed the PRGs, which were established as the FALs for this CAS. Therefore, TPH was not considered a COC, and a use restriction was not implemented.

At CAS 12-01-02, SVOCs (i.e., dibenz(a,h)anthracene and benzo(a)pyrene) remained at concentrations above the PALs. Because the contamination was deduced to likely be associated with asphalt-type material that is ubiquitous around the NTS, the SVOCs were not considered COCs, and a use restriction was not implemented.

TABLE 9. CHEMICAL COMPONENTS OF DIESEL AND ASSOCIATED FALS

CHEMICAL COMPOUND	FAL (MG/KG)	SAMPLE NUMBER 122226-4 (MG/KG)
1,3,5-Trimethylbenzene	70	<0.005
2-Methylnaphthalene [1]	190	<0.350
Anthracene	100,000	<0.350
Benzo(a)anthracene	2.1	<0.350
Benzene	1.4	<0.005
Benzo(a)pyrene	0.2	<0.350
Benzo(b)fluoranthene	21	<0.350
Benzo(g,h,i)perylene	29,000	<0.350
Benzo(k)fluoranthene	21	<0.350
Chrysene	210	<0.350
Ethylbenzene	400	<0.005
Fluoranthene	22,000	<0.350
Fluorene	26,000	<0.350
Naphthalene	190	<0.350
n-Butylbenzene	240	<0.005
n-Propylbenzene	240	<0.005
Phenanthrene	100,000	<0.350
Pyrene	29,000	<0.350
Toluene	520	<0.005
Xylenes [2]	420	<0.005

[1] Uses PRG for napthalene
[2] Total of m-, o-, and p-xylenes
FAL – final action level
mg/kg – milligram(s) per kilogram

2.3 CORRECTIVE ACTION SCHEDULE AS COMPLETED

Closure activities began in February 2008 and were completed in September 2008. Details of the schedule are provided in Table 10.

TABLE 10. CORRECTIVE ACTION UNIT 121 CLOSURE ACTIVITIES SCHEDULE

CORRECTIVE ACTION SITE OR ACTIVITY	START DATE	END DATE
Waste Characterization Sampling	February 13, 2008	April 23, 2008
12-01-01, Aboveground Storage Tank	February 13, 2008	February 13, 2008
12-01-02, Aboveground Storage Tank	February 13, 2008	September 15, 2008
12-22-26, Drums; 2 AST's	April 17, 2008	April 23, 2008

2.4 SITE PLAN/SURVEY PLAT

As-built drawings were not required for CAU 121 closure activities.

3.0 WASTE DISPOSITION

This section describes the waste streams generated during closure activities and their final disposition. Waste streams included sanitary waste, petroleum hydrocarbon PCB remediation waste, PCB remediation waste, and hazardous waste (HW). Waste disposition is summarized in Table 11 and discussed in detail in the following sections. Waste disposition documentation is included in Appendix C.

3.1 WASTE MINIMIZATION

Industry standard waste minimization practices were applied throughout the course of closure activities. These practices included laboratory analysis of characterization samples to correctly characterize and segregate waste streams and to determine whether waste generation was needed. Empty tanks were crushed before being placed in the landfill units to minimize the volume occupied within the landfill.

3.2 WASTE MANAGEMENT

All waste was managed according to applicable federal and state regulations, U.S. Department of Energy orders, and company procedures. Waste management areas (WMAs) were established throughout the project, as needed. All WMAs were identified with appropriate signs and boundaries to restrict unauthorized access. The WMAs were inspected on a weekly or monthly basis, as required, to ensure that all containers were intact, not leaking, and not exceeding storage duration times.

Waste containers were purchased either new or reconditioned. Prior to use, all containers were inspected to verify that they were in good condition (e.g., no leaks, rust, or dents), lined or made of material that would not react with the waste, and in compliance with U.S. Department of Transportation requirements. The containers remained closed while stored unless waste was being added. Containers were also handled in such a manner that the integrity of the container was not compromised. Appropriate labels were affixed, and relevant information was marked on the containers with an indelible marker. All information was legible and clearly visible.

3.3 WASTE CHARACTERIZATION

Accurate and defensible analytical data were collected to correctly characterize waste. All tanks were empty and did not require sampling for waste determination. Process knowledge and field screening was adequate for determination of this waste stream. Samples collected to characterize the sites were adequate to determine waste disposition requirements for excavated soil. The laboratory data reports for waste characterization samples are included in Appendix B. All waste was screened to verify that radiological contamination was less than the free-release limit established in the NV/YMP Radiological Control Manual (NNSA/NSO, 2004).

TABLE 11. CORRECTIVE ACTION UNIT 121 WASTE DISPOSITION SUMMARY

WASTE STREAM	CORRECTIVE ACTION SITE	DESCRIPTION OF WASTE	VOLUME	WASTE CONTAINER	DISPOSITION
Sanitary Waste	12-01-01, Aboveground Storage Tank	Tank	4 yd^3	No waste container necessary. Transported to the landfill and disposed as bulk waste.	Disposed at the Area 9 U10c Sanitary Landfill
	12-01-02, Aboveground Storage Tank	Tank	1 yd^3		
	12-22-26, Drums; 2 AST's	Tank and associated stand	5 yd^3		
	All CASs	Investigation-derived sampling equipment	0.2 yd^3		
Petroleum Hydrocarbon PCB Remediation Waste	12-01-02, Aboveground Storage Tank	Soil	5 yd^3	No waste container necessary. Transported to the landfill and disposed as bulk waste.	Disposed at the Area 9 U10c Sanitary Landfill
PCB Remediation Waste	12-01-02, Aboveground Storage Tank	Soil	13 yd^3	No waste container necessary. Transported to the landfill and disposed as bulk waste.	Disposed at the Area 9 U10c Sanitary Landfill
HW	12-01-02, Aboveground Storage Tank	PetroFlag® waste	1 gal	Drum	Managed with other PetroFlag® waste in a satellite accumulation area, to be disposed as HW in accordance with applicable regulations and procedures.

gal – gallon(s)
HW – hazardous waste
PCB – polychlorinated biphenyl
yd^3 – cubic yard(s)

Samples were collected with disposable sampling equipment, placed in appropriately labeled sample containers, and secured with custody seals. All samples were labeled with a unique sample number, placed on ice, and transported under a chain of custody to the analytical laboratory. Standard quality assurance (QA)/quality control (QC) samples were collected. One blind duplicate was collected for each day's sampling event. A trip blank accompanied the samples whenever samples were collected for volatile organic analyses. Samples were analyzed by certified offsite contract laboratories. Analytical results were validated at the laboratory using stringent QA/QC procedures, including matrix spike/matrix spike duplicates (MS/MSDs), spiked surrogate recovery analysis, verification of analytical results, and data quality indicator requirements. Detailed information regarding the QA/QC program requirements can be found in the Industrial Sites QAPP (NNSA/NV, 2002).

3.4 WASTE STREAMS AND DISPOSAL

Waste streams generated during closure activities at CAU 121 included sanitary waste, petroleum hydrocarbon PCB remediation waste, PCB remediation waste, and HW. Waste disposition documentation is included in Appendix C.

3.4.1 Sanitary Waste

Sanitary waste included tanks, sampling equipment, and other investigation-derived waste. Approximately 10 yd^3 of sanitary waste were transported in end-dump trucks to the Area 9 U10c Industrial Landfill for disposal.

3.4.2 Petroleum Hydrocarbon PCB Remediation Waste

Petroleum hydrocarbon PCB remediation waste consisted of soil that was excavated at CAS 12-01-02. Approximately 5 yd^3 of soil were transported via end-dump truck to the Area 9 U10c Industrial Landfill. The Area 9 U10c Sanitary Landfill accepts a limited amount of hydrocarbon-impacted waste and PCB remediation waste at concentrations less than 50 mg/kg PCB.

3.4.3 PCB Remediation Waste

PCB remediation waste consisted of soil that was excavated at CAS 12-01-02. Approximately 13 yd^3 of soil were transported via end-dump truck to the Area 9 U10c Industrial Landfill. The Area 9 U10c Sanitary Landfill accepts a limited amount of PCB remediation waste at concentrations less than 50 mg/kg PCB.

3.4.4 Hazardous Waste

A total of approximately 1 gal of HW was generated during closure activities. This waste consisted solely of PetroFlag® waste from field-screening soil for petroleum hydrocarbon concentrations at CAS 12-01-02. PetroFlag® waste is an ongoing investigation and remediation waste stream that is managed in a satellite accumulation area. This waste stream is managed and disposed in accordance with applicable regulations.

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4.0 CLOSURE VERIFICATION RESULTS

Site closure was accomplished by collecting and analyzing characterization samples, by excavating soil with concentrations greater than the PALs, by collecting and analyzing soil samples to determine whether remaining concentrations are less than FALs or to determine site conditions, and by visual observations and site closure photographs. Characterization samples were collected at all of the CASs. Cleanup samples were collected in three phases at CAS 12-01-02. Final cleanup sample results showed that dibenz(a,h)anthracene and benzo(a)pyrene were still present at concentrations greater than the PALs at this CAS; however, the source is neither from the CAS nor something requiring corrective action.

Details on closure activities and analytical results are presented in Section 2.0. Laboratory summary sheets with analytical results are provided in Appendix B. Photographs showing the stages of the closure activities and documenting removal of ASTs are provided in Appendix D.

4.1 DATA QUALITY ASSESSMENT

Accurate and defensible analytical data were collected to verify that the CAU 121 closure objectives were met. Samples were collected with disposable sampling equipment and placed in appropriately labeled sample containers secured with custody seals. All samples were labeled with a unique sample number, placed on ice, and transported under a chain of custody. Standard QA/QC samples that were collected consisted of (1) a minimum of 1 blind duplicate per 20 samples and/or sample batch, (2) a trip blank that accompanied each batch of samples requiring VOC analysis, and (3) MS/MSD samples.

Samples were analyzed by certified offsite contract laboratories using methods identified in the CAU 121 SAFER Plan. Samples were analyzed for chemical compounds in accordance with the *Test Methods for Evaluating Solid Waste Physical/Chemical Methods* (EPA, 1996):

- VOCs – Method 8260B
- SVOCs – Method 8270C
- RCRA Metals – Method 6010B
- TPH – Method 8015B
- PCBs – Method 8082

Analytical results were validated at the laboratory using stringent QA/QC procedures that included MS/MSD sample analysis, spiked surrogate recovery analysis, verification of analytical results, and evaluation of data quality indicator requirements. More detailed information regarding the QA/QC program requirements and procedures can be found in the Industrial Sites QAPP (NNSA/NV, 2002) and the CAU 121 SAFER Plan (NNSA/NSO, 2007).

Data validation was performed according to the Industrial Sites QAPP (NNSA/NV, 2002), which is based on the EPA functional guidelines for data quality (EPA, 1994; 1999). Data were reviewed to ensure that samples were appropriately processed and analyzed and that the results are valid. All sample data were verified and validated at the Tier I, II, and III levels. The excavation at CAS 12-01-02 was resampled because of anomalies in the phase 1 analytical

results. The following sections provide details on the results of specific data quality indicators and specifics regarding other anomalies identified during the data review.

4.1.1 Characterization Sample QA/QC

Characterization samples were collected to verify the CSM for each site and to confirm the appropriate path forward for closure. Results for CASs 12-01-01 and 12-01-02 are in sample delivery groups (SDGs) V3056 (chemical) and V3057 (radiological). Results for CAS 12-22-26 are in SDGs V3097 (chemical) and V3098 (radiological).

Data met the required data quality indicators (i.e., precision, accuracy, sensitivity, completeness, comparability, and representativeness) with the following exceptions:

- Methylene chloride was detected at low concentrations in the method blanks, the samples, and the trip blanks. Methylene chloride in these results is considered a laboratory contaminant and is not considered to be present in the samples. All of the sample results for methylene chloride are orders of magnitude less than the action level; therefore, the data are usable for making a decision.
- Field duplicates exceed the 20-percent relative percent difference (RPD) for oil-range petroleum hydrocarbons (113 percent) in CAS 12-01-01 samples. The large discrepancy in hydrocarbon analytical field duplicates could indicate the presence of petroleum hydrocarbons at concentrations that approach the PAL; however, the hazardous VOC and SVOC constituents present in petroleum hydrocarbons are not present in these samples. Therefore, the decision that concentrations to do not exceed the PALs is valid.
- Field duplicates exceed the 20-percent RPD for several metals; however, all concentrations are orders of magnitude less than the action level; therefore, the data are viable for making a decision.
- Gross alpha recovery exceeded the laboratory's upper control limit for CASs 12-01-01 and 12-01-02; therefore, gross alpha results may be biased high. This does not affect the ability to use the results for a decision.
- All sample times were not included on the SDG V3057 chain of custody form. The analytical laboratory noted the missing times, which were identified on the sample jars.

While only summary laboratory QC data for closure samples are included in Appendix B, the complete data sets, including validation reports for waste characterization and cleanup samples, are maintained in the Management and Operations Contractor project files.

4.1.2 Cleanup Sample QA/QC

Cleanup samples were collected after each phase of excavation at CAS 12-01-02 to determine whether cleanup activities were successful in reducing compounds to concentrations less than the PALs. Cleanup sample analytical results are located in SDGs V3106, V3112, and V3130. Data met the required data quality indicators (i.e., precision, accuracy, sensitivity, completeness, comparability, and representativeness) with the following exceptions:

- All phase 1 analytical results are valid and meet acceptance criteria with the exception of benzo(a)pyrene and dibenz(a,h)anthracene results. Laboratory analytical results for several

samples show that concentrations in several samples are less than the detection limit; however, the detection limit provided (0.350 mg/kg) is greater than the PAL for these compounds. The phase 1 analytical results for these compounds were therefore not used to determine that concentrations were less than the action level where this occurred. Additional samples were collected after phase 3 excavation to confirm the concentrations of these compounds after the final excavation.

- Only two samples were collected upon conclusion of the phase 2 excavation activities. These were both collected from the same location (i.e., one sample plus one duplicate sample). At 73 percent, the 20-percent RPD requirement was exceeded for Aroclor 1254. Both samples required a 10-fold instrument dilution due to high concentrations of non-target and target analytes. The combination of matrix heterogeneity and sample dilution contributed to the differences. Both concentrations are still significantly less than the action level and can be used to make a decision.

4.1.3 Conceptual Site Models

CSMs were developed and presented in the approved SAFER Plan for CAU 121 (NNSA/NSO, 2007). The following identifies how the CSM was confirmed at each site, and which CSM was found to be applicable at each site.

- CAS 12-01-01, Aboveground Storage Tank: The primary CSM for this site consisted of a tank with no release of its contents (i.e., deposited at the site empty). Analytical results showed that the concentrations of all analytes were less than the PALs, thereby confirming the primary CSM.
- CAS 12-01-02, Aboveground Storage Tank: The primary CSM for this site consisted of a tank with no release of its contents (i.e., deposited at the site empty). The alternate CSM consisted of a tank with a release of its contents. The alternate CSM was found to be more applicable due to the presence of PCBs exceeding the PAL that may possibly have originated from the tank contents. TPH and SVOCs present at the site were likely associated with asphalt and are not considered COCs for this site.
- CAS 12-22-26, Drums; 2 AST's: Two CSMs were presented for this CAS, one for the drum area and one for the tank area.
    - For the drum area, the primary CSM assumed no release from the drums, and the alternate CSM assumed minimal releases of limited quantities. Analytical results showed that only TPH exceeded the PAL, and that the hazardous constituents did not exceed the FALs. The primary CSM of no release greater than FALs was confirmed for the drum area.
    - For the tank area, the primary CSM assumed a significant release from the AST in its operational location, and the alternate CSM assumed no release from the AST. The alternate CSM is consistent with the findings because the tank only contained diesel, and no diesel-range hydrocarbons were found in the tank area.

4.2 USE RESTRICTIONS

Use restrictions were not implemented for any CASs in CAU 121.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSIONS

The following site closure activities were performed at CAU 121 and are documented in this CR:

- CAS 12-01-01, Aboveground Storage Tank, consisted of one empty AST and associated impacted soil, if any. No COCs were present; therefore, no further action was chosen as the corrective action alternative. As a BMP, the empty AST was removed and disposed as sanitary waste.
- CAS 12-01-02, Aboveground Storage Tank, consisted of one empty AST and associated impacted soil, if any. Sample results showed that PCBs exceeded the PAL in the soil beneath the AST. PCBs could possibly have originated from the AST contents; therefore, PCBs were considered COCs, and clean closure was chosen as the corrective action alternative. Approximately 5 yd^3 of soil were excavated and disposed as petroleum hydrocarbon PCB remediation waste, and approximately 13 yd^3 of soil were disposed as PCB remediation waste. Cleanup samples were collected to confirm that the remaining soil did not contain PCBs above the PAL. Benzo(a)pyrene, dibenz(a,h)anthracene, and TPH were also present above the PALs. Sample results indicated that the degraded asphalt adjacent to the site and surrounding the Area 12 Camp water tank was the likely source of these compounds; therefore, they were not considered COCs. As a BMP, the empty AST was removed and disposed as sanitary waste.
- CAS 12-22-26, Drums; 2 AST's, consists of two areas. The first area, the drum area, consisted of soil in an area where drums of unknown contents or condition had previously been stored. The second area, the tank area, consisted of an AST and associated impacted soil, if any. Sample results showed that TPH exceeded the PAL in both the drum area and the tank area; however, the VOC and SVOC hazardous constituents of TPH did not exceed the FALs. Therefore, TPH was not considered a COC, and no further action was chosen as the corrective action alternative. As a BMP, the empty AST was removed and disposed as sanitary waste.

5.2 POST-CLOSURE REQUIREMENTS

No use restrictions were implemented, and there are no post-closure requirements.

5.3 RECOMMENDATIONS

Since closure activities for CAU 121 have been completed following the Nevada Division of Environmental Protection (NDEP) approved SAFER Plan (NNSA/NSO, 2007), as documented in this report, NNSA/NSO requests the following:

- A Notice of Completion provided by the NDEP to NNSA/NSO for the closure of CAU 121
- The transfer of CAU 121 from Appendix III to Appendix IV, Closed Corrective Action Units, of the FFACO (FFACO, 1996; as amended February 2008)

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6.0 REFERENCES

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APPENDIX A*

DATA QUALITY OBJECTIVES

* As presented and published in Section 3.0 of the approved *Streamlined Approach for Environmental Restoration Plan for Corrective Action Unit 121: Storage Tanks and Miscellaneous Sites, Nevada Test Site, Nevada*. 2007. DOE/NV--1208. Las Vegas, NV.

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3.0 DATA QUALITY OBJECTIVES

The DQO process is a seven-step systematic planning method based on the scientific method that was used to plan data collection and field investigation activities for CAU 121, Storage Tanks and Miscellaneous Sites. The seven steps of the DQO process presented in this report were developed according to the U.S. Environmental Protection Agency (EPA) *Guidance on Systematic Planning Using the DQO Process* (EPA, 2006). DQOs are designed to ensure that the data collected will provide sufficient and reliable information to support the potential closure alternatives for CAU 121. Although sufficient information is available about the nature and extent of contamination at CAU 121 to suggest a closure activity, additional data are needed to verify the existing information, confirm the existence of contamination and/or waste, and affirm the closure decision.

During DQO discussions for CAU 121, data needed to resolve problem statements and decision statements were identified. Criteria for data collection and analysis were defined and agreed upon, and the appropriate quality assurance (QA) / quality control (QC) required for particular data collection activities were assigned. The analytical methods and reporting limits prescribed through the DQO process and the data quality indicators (DQIs) for laboratory analysis, such as precision and accuracy requirements, are provided in more detail in Section 7.0 of this SAFER plan.

3.1 SUMMARY OF DQO ANALYSIS

3.1.1 STATE THE PROBLEM (STEP 1)

Step 1 of the DQO process describes the problem to be studied and develops a conceptual site model (CSM) to gain a sufficient understanding of the problem.

The problem statement for CAU 121 is: "Additional information is required to verify existing information, identify the appropriate disposal pathway(s) for waste, confirm the absence or presence of COCs, and affirm the closure decision." A COC is defined as any contaminant in the soil that is present at concentrations exceeding its PAL. If a COC is present, then the appropriate FAL will be determined above which a closure action is required.

3.1.1.1 CSM

The CSM is used to organize and communicate information about site characteristics. It reflects the best interpretation of available information at any point in time. The CSM is based on historical documentation, personnel interviews, site process knowledge, site walk-downs, photographs, engineering drawings, field screening, and analytical results. The CSM describes the most probable scenario for current conditions at the site and defines the assumptions that are the basis for identifying an appropriate sampling strategy and data collection methods.

The CSM for CAU 121 consists of localized, limited contamination sources (i.e., ASTs or drums) that have released none, all, or a portion of their contents to the surrounding soil. The CSM for each of the CASs is as follows.

CAS 12-01-01, Aboveground Storage Tank, consists of one 650-gal AST and soil below the AST that may have been impacted by the AST contents. The tank is expected to have been left at the

CAS location after it had been emptied; therefore, the primary CSM is that there is nothing inside the AST or in the soil below the AST. The alternate CSM assumes that the contents of the AST (some or all) were released to the soil after it had been brought to the site.

CAS 12-01-02, Aboveground Storage Tank, consists of one 140-gal AST and soil below the AST that may have been impacted by the AST contents. The tank is expected to have been left at the CAS location after it had been emptied; therefore, the primary CSM is that there is nothing inside the AST or in the soil below the AST. The alternate CSM assumes that the contents of the AST (some or all) were released to the soil after it had been brought to the site. The primary and alternate CSMs for CASs 12-01-01 and 12-01-02 are presented in Figure 2.

CAS 12-22-26, Drums; 2 AST's, consists of one remaining 1,800-gal diesel AST and soil below the original and former locations of the AST, soil at the location of a former MgCl AST, and soil where drums were previously located near the diesel AST (at its former location). Based on process knowledge, the diesel AST was used to store fuel for locomotives. Historical aerial photos also indicate that the AST has been located at corresponding locations on the north and south sides of the train tracks. There is no evidence that the AST is currently leaking; however, spillage and overfilling was historically common nationwide around fuel tanks and dispensing operations.

Based on process knowledge, the MgCl AST was used to store chilled water for grouting operations and, later, to store MgCl. MgCl is not considered an environmental concern; hence, the soil below this former AST is not an area of concern.

This CAS also includes soil that may have been impacted by releases from drums that were previously stored to the west of the diesel AST when it was located on the north side of the train tracks. This location was identified from photographs in the *Nevada Test Site Inventory of Inactive and Abandoned Facilities and Waste Sites* report (REECo, 1991). Because the drums are limited in size, any release of regulated waste is expected to be limited to shallow soil in the drum area. There is no evidence that the drums released any of their contents.

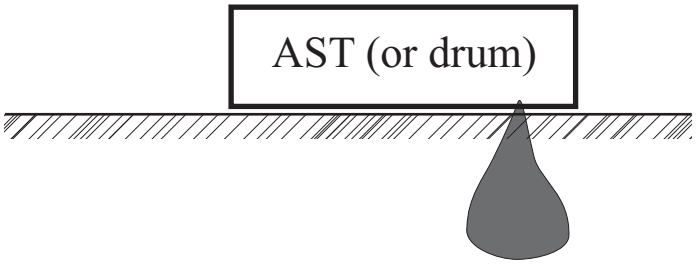
Based on the information presented above, the primary CSM for CAS 12-22-26 assumes that there has been a release of diesel to the soil below and around the remaining AST (original location), its former location, and possibly the soil between both locations; and that there has been no release from drums to soil. The CSM for the drum area is depicted in Figure 2. The alternate CSM for the drum area of CAS 12-22-26 is similar to the CSM for CASs 12-01-01 and 12-01-02, with the only difference being the source as a drum rather than an AST. The CSM for the AST area is depicted in Figure 3. The alternate CSM for the AST area assumes that there has been no release from the diesel AST to the soil.

Waste that is expected to be generated from CAU 121 includes ASTs and soil that has become impacted by releases from the ASTs and drums. The area around G-tunnel and the Area 12 Camp are active areas. CAU 121 only includes the ASTs and soil impacted by releases from the ASTs and said drums. If additional CSM elements that are outside the scope of the CSM are

Primary Conceptual Site Model
(No release from AST or drum)

Profile Views

Alternate Conceptual Site Model
(Release from AST or drum)



LEGEND

Ground surface

Contaminated soil

Not to Scale

FIGURE 2
CSM FOR CASs 12-01-01, 12-01-02, AND 12-22-26 DRUM AREA

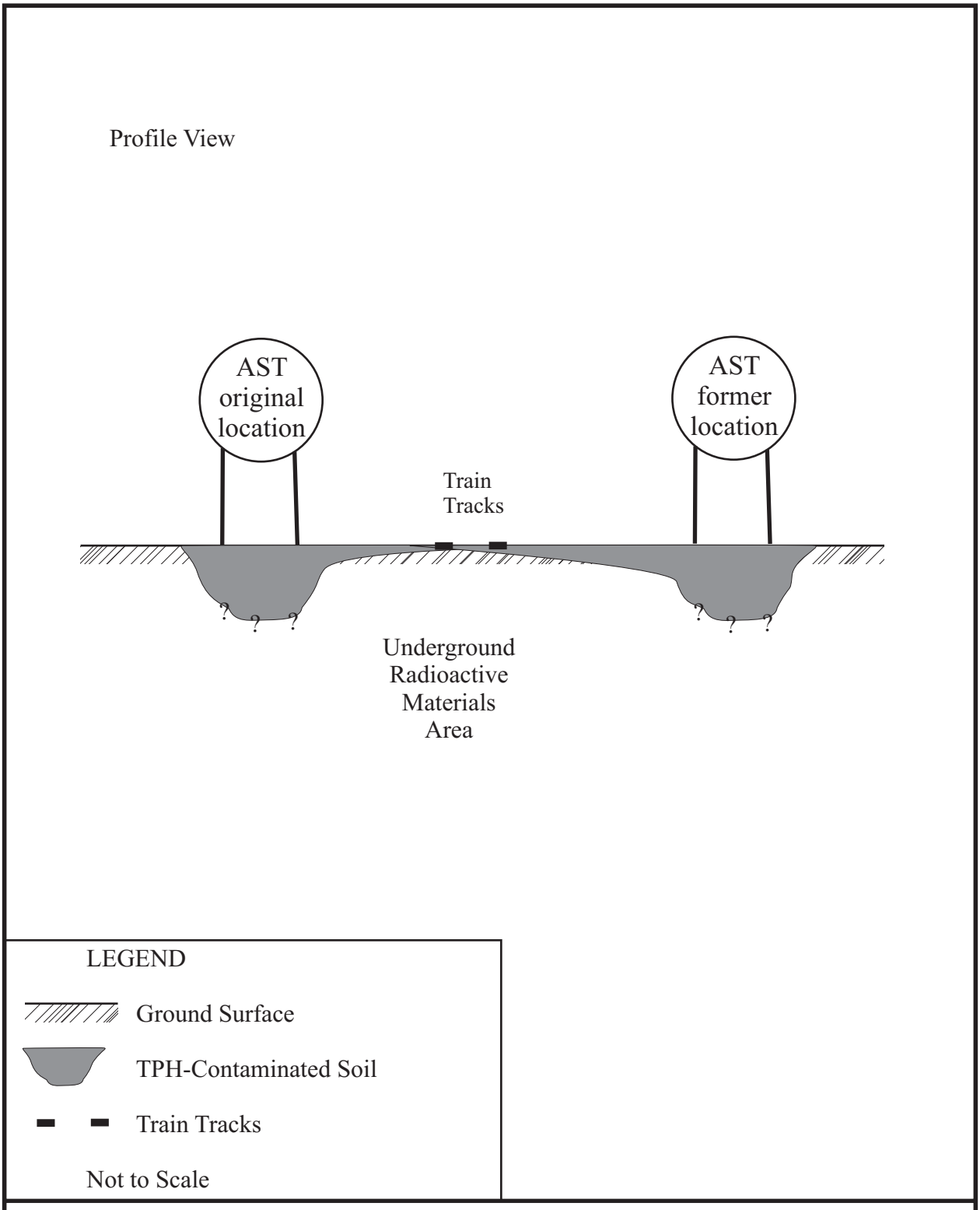


FIGURE 3
CSM FOR CAS 12-22-26 AST Area

identified during remediation, the situation will be reviewed and a recommendation will be made as to how to proceed. In such cases, the NDEP will be notified and given the opportunity to comment on, or concur with, the recommendation.

3.1.2 IDENTIFY THE GOAL OF THE STUDY (STEP 2)

Step 2 of the DQO process identifies the questions the study will attempt to resolve and what actions may result. The goal of the study is to answer the following questions satisfactorily. The questions are arranged in the order that they will be addressed.

1. Do the existing ASTs contain regulated waste or are the containers themselves a regulated waste? The result will be an identification of the disposal pathway for the ASTs and their contents.

2. Is the soil impacted with contamination that exceeds action levels? The result will be excavation of impacted soil (CASs 12-01-01 and 12-01-02) or evaluation of site-specific hazards to determine whether excavation of impacted soil is justifiable (CAS 12-22-26).

3. Does the risk to personnel and the environment justify the removal (excavation) of impacted soil (CAS 12-22-26 only)? The result will be to either excavate impacted soil or close the site using other methods (e.g., URs).

4. Has excavation of soil reduced the contamination levels to acceptable concentrations? The result will be to verify that resulting concentrations are at acceptable levels or, if not, to continue excavating until that result has been reached.

3.1.3 IDENTIFY INFORMATION INPUTS (STEP 3)

Step 3 of the DQO process identifies the information available, the information needed, the sources of information, and sampling and analysis methods that can meet the data requirements. Table 1 presents information available, information needed, and proposed methods to obtain the information that is needed to meet the closure goal.

3.1.3.1 Information Needs

In order to confirm the CSM and determine the nature and extent of contamination, data must be collected and analyzed using the following criteria:

- Data will be collected from locations most likely to be contaminated (judgmental, or biased, sampling approach) at CASs 12-01-01, 12-01-02, and 12-22-26 AST area.
- Samples will be collected from statistically determined locations in the CAS 12-22-26 drum area.
- The analytical suite selected will be adequate to detect contaminants present in the samples.

TABLE 1. INFORMATION NEEDS FOR DECISION RESOLUTION

DECISIONS NEEDED	INFORMATION AVAILABLE	INFORMATION NEEDED	PROPOSED METHOD(s) TO OBTAIN INFORMATION NEEDED
1. Do the existing ASTs contain regulated waste or are the containers themselves a regulated waste?	CAS 12-01-01: Believed empty based on visual observations and information contained in *Nevada Test Site Inventory of Inactive and Abandoned Facilities and Waste Sites* (REECo, 1991). CAS 12-01-02: Believed empty based on visual observations showing numerous small diameter openings through which liquid content would have evaporated.	CASs 12-01-01 and 12-01-02: (1) If empty, determine if container can be free-released for disposal. (2) If not empty, identify chemical and radiological COCs.	CASs 12-01-01 and 12-01-02: (1) Screen AST for radioactivity to free-release container. (2) Collect sample(s) of contents and analyze for full suite of chemical and radiological parameters.
	CAS 12-22-26 (AST): Existing AST dispensed diesel fuel to locomotives on the train tracks going into G-tunnel based on process knowledge of personnel familiar with the site and as supported by the tank configuration and labeling. AST believed empty based on field observations.	CAS 12-22-26 (AST): (1) If empty, determine if container can be free-released for disposal. (2) If not empty, verify if contents can be free-released for disposal.	CAS 12-22-26 (AST): (1) Screen AST for radioactivity to free-release container. (2) Screen contents for radioactivity to free-release.

TABLE 1. INFORMATION NEEDS FOR DECISION RESOLUTION (CONT'D)

DECISIONS NEEDED	INFORMATION AVAILABLE	INFORMATION NEEDED	PROPOSED METHOD(s) TO OBTAIN INFORMATION NEEDED
2. Is the soil impacted with contamination that exceeds action levels?	CAS 12-01-01: None CAS 12-01-02: None CAS 12-22-26: (1) Former AST contained water and MgCl, per process knowledge. MgCl is not an environmental COC. (2) Existing AST contained diesel fuel per process knowledge. (3) Former drum contents are unknown.	CASs 12-01-01 and 12-01-02: Concentrations of radiological or chemical compounds in the soil beneath the ASTs. CAS 12-22-26: (1) Soil beneath former (MgCl) AST - no action needed. Process knowledge is adequate. (2) Soil in diesel AST area - determine if soil contains diesel-range petroleum hydrocarbons at concentrations above action levels. (3) Soil beneath former drums - determine if soil has chemical concentrations above action levels or radioactive concentrations above local background.	CASs 12-01-01 and 12-01-02: Collect soil samples from beneath each AST in the location(s) where each AST most likely released its contents (i.e., beneath openings in the tank). Analyze for what was inside AST, if it had contents to sample, or for a full suite analysis if the AST is empty. CAS 12-22-26: (1) Not applicable (2) Collect soil samples from locations most likely to be impacted with diesel from the tank at both its north-of-train-track and south-of-train-track locations. Analyze for diesel-range petroleum hydrocarbons. (3) At drum area, (a) field-screen soil for radioactive levels higher than area background. (b) collect samples from the predetermined grid locations as identified through Visual Sample Plan (VSP) software (Pacific Northwest National Laboratory [PNNL], 2005). Analyze for the full suite.
3. Does the risk to personnel and the environment justify the removal (excavation) of impacted soil (CAS 12-22-26 only)?	CAS 12-22-26: Analytical results from Decision II sampling. Also, the area is posted as a URMA.	CAS 12-22-26: Levels of background radioactivity in the area surrounding the CAS.	CAS 12-22-26: Collect a minimum of one sample from the area outside of the CAS boundary to establish the background radioactivity in the local area.

TABLE 1. INFORMATION NEEDS FOR DECISION RESOLUTION (CONT'D)

DECISIONS NEEDED	INFORMATION AVAILABLE	INFORMATION NEEDED	PROPOSED METHOD(s) TO OBTAIN INFORMATION NEEDED
4. Has excavation of soil reduced contamination to acceptable concentrations? (Note: Only applies to areas where soil was excavated.)	Field screening results for radioactivity from Decisions 2 and 3 field screening. Field screening for total petroleum hydrocarbons (TPH), in areas where petroleum hydrocarbons was a contaminant being removed.	Analytical results confirming that contamination levels have been reduced to acceptable levels.	CASs 12-01-01 and 12-01-02: Collect samples from base and sides of excavation to verify remaining levels at less than action levels. Analyze only for what was detected at concentrations above action level in sample(s) from excavated soil. Collect a minimum of (a) 1 sample from base of excavation and (b) 2 samples from sidewall if excavation is smaller than 1-ft diameter, or 3 samples if excavation is larger than 1-ft diameter. CAS 12-22-26: **Radioactivity** - If excavation removed radiological "hot spots," then collect a minimum of 3 samples from surface soil surrounding excavation, to confirm that surface radiological "hot spot" has been removed. **Chemicals** - Collect samples from bottom and sides of excavation to verify remaining levels are less than action levels. Analyze only for what was detected at concentrations above action levels in excavated soil. Collect minimum of: (a) 1 sample from base of excavation and (b) 2 samples from sidewall if excavation is smaller than 1-ft diameter or 3 samples if excavation is larger than 1-ft diameter.

3.1.3.2 Sources of Information

Information needed to satisfy the decisions will be generated by visually confirming the absence (or presence) of waste within containers, collecting samples of AST contents (if any), conducting radiological surveys, and collecting soil samples.

Qualitative Data

Qualitative data identify or describe the characteristics or components of the site. The QA/QC requirements are the least rigorous on data collection methods and measurement systems for qualitative data. The intended use of the data is for information purposes, to refine conceptual models, and to guide investigations rather than resolve primary decisions. This measurement of quality is typically assigned to historical information and data where QA/QC may be highly variable or not known. Professional judgment is often used to generate qualitative data.

Visual observations will be made to identify the presence of biasing factors such as stained soil and to confirm the presence or absence of waste within the ASTs.

Semi-quantitative Data

Semi-quantitative data indirectly measure the quantity or amount of a characteristic or component. Inferences are drawn about the quantity or amount of a characteristic or component because a correlation has been shown to exist between the indirect measurement and the results from a quantitative measurement. The QA/QC requirements on semi-quantitative collection and measurement systems are high but may not be as rigorous as for quantitative data. Semi-quantitative data contribute to decision making but are not used alone to resolve primary decisions. Field-screening data are generally considered semi-quantitative. The data are often used to guide investigations toward quantitative data collection.

Field screening activities will be conducted for alpha and beta/gamma radiation to identify any areas where samples should be collected due to elevated radioactivity that might indicate a release from either ASTs or drums and subsequent soil contamination. A handheld radiological survey instrument will be used to identify any areas with radioactivity that is elevated above the surrounding area. In areas where TPH concentrations are greater than action levels, TPH field screening will also be used to get an indication of where the concentrations are less than action levels. These field screening techniques will provide semi-quantitative data that can be used to guide sampling (e.g., obtain locations for biased sample collection) and waste management activities.

Quantitative Data

Quantitative data measure the quantity or amount of a characteristic or component. These data require the highest level of QA/QC in collection and measurement systems because the intended use of the data is to resolve primary decisions and/or to verify that closure standards have been met. Laboratory analytical data are generally considered quantitative.

A judgmental (biased) sampling approach will be used to collect samples beneath the ASTs at CASs 12-01-01 and 12-01-02, and at the CAS 12-22-26 diesel AST area. Biasing factors consist of stained soil, elevated radioactivity (as identified through radiological onsite screening), and soil located below AST openings. The locations with potential for contamination are summarized in Table 1. Biasing factors (i.e., either stained soil or AST openings) are present at

all AST sample locations. Samples collected from CASs 12-01-01 and 12-01-02 will be analyzed for the full suite parameters unless the tanks contain adequate volume for sampling, in which case soil samples (from below the AST) will only be analyzed for those constituents greater than action levels within the AST.

Historical aerial photos indicate that the existing AST at CAS 12-22-26 was previously located at corresponding locations on both the north and south sides of the train tracks. Samples will be collected from both locations to identify whether there may have been a release from this AST at either location. At least one sample will be collected from under each half of the tank at each of these locations, where there is staining or other biasing factors (e.g., tank openings) are present. Samples collected from this area will only be analyzed for diesel-range petroleum hydrocarbons. The tank is currently in a G-tunnel storage area and not at either of the locations where it was previously used; therefore, as a best management practice (BMP), at least one sample will be collected from a biased location beneath the tank's current location and analyzed for diesel-range petroleum hydrocarbons to confirm that there has been no release at its current location.

For the drum area of CAS 12-22-26, a photograph from the *Nevada Test Site Inventory of Inactive and Abandoned Facilities and Waste Sites* report (REECo, 1991), from which this site was originally listed in the FFACO, shows the drums to be off the west end of the diesel AST when it was located to the north of the train tracks. Recent site visits indicate that visible biasing factors are not present. In the absence of radiological biasing factors, all samples will be collected from a statistically-determined sampling grid determined using VSP software (PNNL, 2005) for identification of "hot spots" within the drum areas. The statistical grid has been determined to identify "hot spots" to a 95 percent confidence level. These samples will be submitted for a full suite analysis.

Samples will be collected from locations likely to be contaminated using appropriate sampling methods. Samples will be submitted to analytical laboratories meeting the quality criteria stipulated in the Industrial Sites QAPP (NNSA/NV, 2002). Validated data from analytical laboratories will be used to support DQO decisions. Sample collection and handling activities will follow standard procedures.

Because CAS 12-22-26 is near the Area 12 G-tunnel, above a URMA, and in an area of potentially elevated background radioactivity due to releases from the G-tunnel, one sample will also be collected from an area at least 25 ft outside of the CAS boundary to establish local radioactivity baseline levels.

3.1.4 DEFINE THE BOUNDARIES OF THE STUDY (STEP 4)

Step 4 of the DQO process defines the target population of interest, specifies the spatial boundaries and time constraints of that population pertinent for decision making, and determines practical constraints on data collection.

3.1.4.1 Population of Interest

The population of interest to resolve the decisions includes the ASTs themselves, materials contained within them, and soil containing contaminants above the action levels below the ASTs and the former drums.

3.1.4.2 Spatial Boundaries

CAS boundaries and proposed sample locations (in absence of biasing factors such as staining or elevated radiological screening results) are described below. The spatial boundaries include the following:

- CAS 12-01-01 includes the AST, its contents, and soil impacted by the AST contents. The CAS boundaries are considered to be the AST perimeter plus 5 ft (Figure 4).

- CAS 12-01-02 includes the AST, its contents, and soil impacted by the AST contents. The CAS boundaries are considered to be the AST perimeter plus 5 ft (Figure 5).

- CAS 12-22-26 consists of two overlapping study areas. The AST area contains the diesel AST, its contents, and soil impacted by the AST contents (original and former locations). The CAS boundary for the AST area is limited to that area encompassed by both tank locations (when it was in use adjacent to the train tracks), the area between the tanks, plus an area 20 ft laterally. The drums were arranged in an "L"-shaped pattern off the west end of the diesel AST when it was located to the north of the train tracks. The area measures approximately 20 ft long by 7 ft wide, with one section 14 ft wide. Figure 6 depicts the CAS boundaries for these two areas.

3.1.4.3 Time Constraints

The study data should be collected considering the length of time that will be required to complete the closure process and the Closure Report (CR), as allowed for by the SAFER process under the FFACO agreement (FFACO, 1996). Data will be collected at times that meet the security and safety constraints of the NTS and at times when weather conditions allow adequate site access and safe working conditions. Time constraints that may affect the schedule of this project include the following:

- Approval of SAFER Plan and DQOs
- Activities in the vicinity of G-tunnel that restrict access to CAS 12-22-26
- Activities in the vicinity of the Area 12 Camp that restrict access to CASs 12-01-01 and 12-01-02

Closure activities are currently scheduled to begin in fiscal year (FY) 2008.

3.1.4.4 Practical Constraints

Other constraints that may affect the ability to collect data include the following:

- Equipment access and availability at NTS
- Adverse weather conditions (e.g., snow and ice in the winter months)
- Acceptance of waste disposal pathways
- Other unsafe working conditions

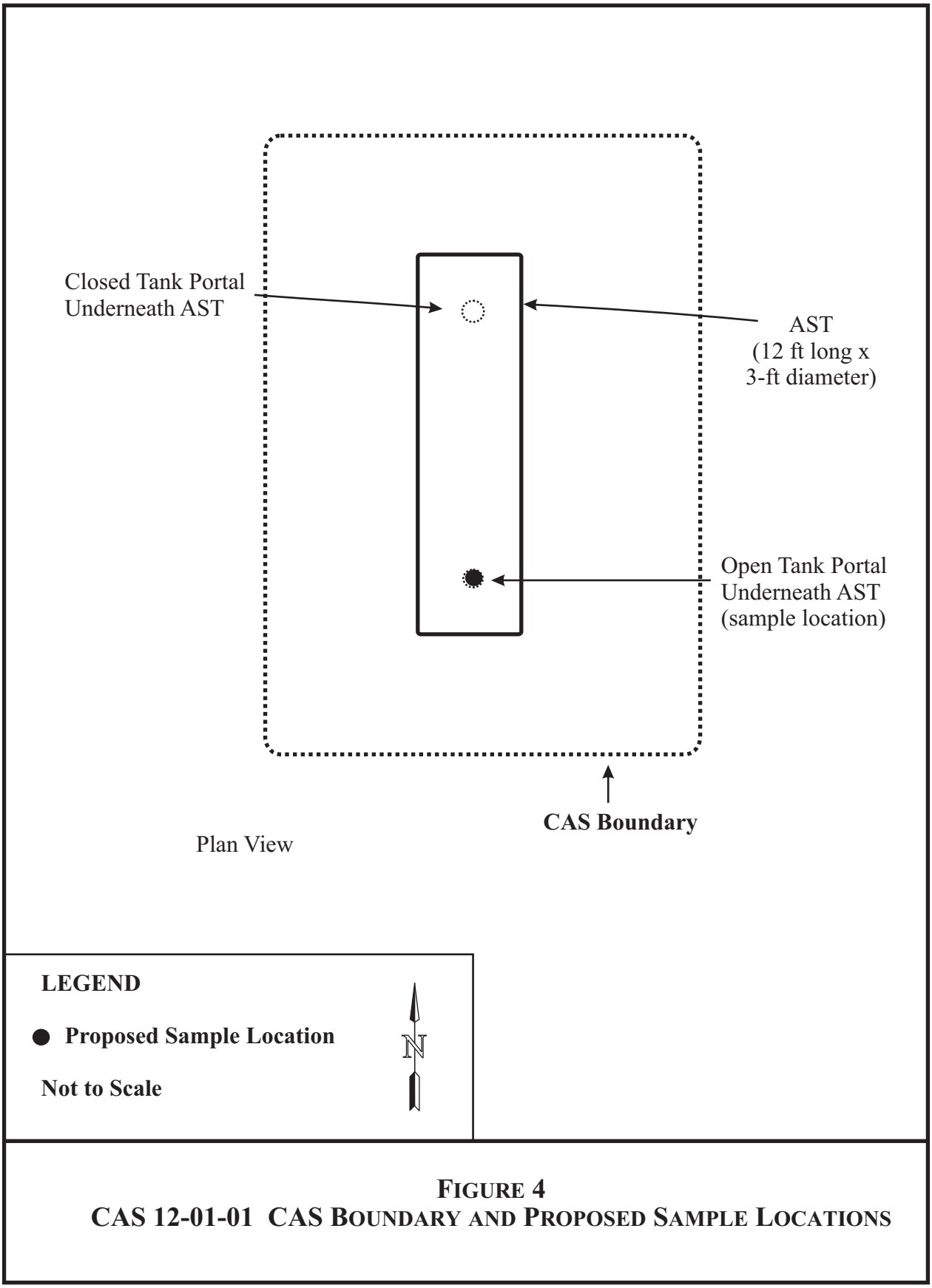


FIGURE 4
CAS 12-01-01 CAS BOUNDARY AND PROPOSED SAMPLE LOCATIONS

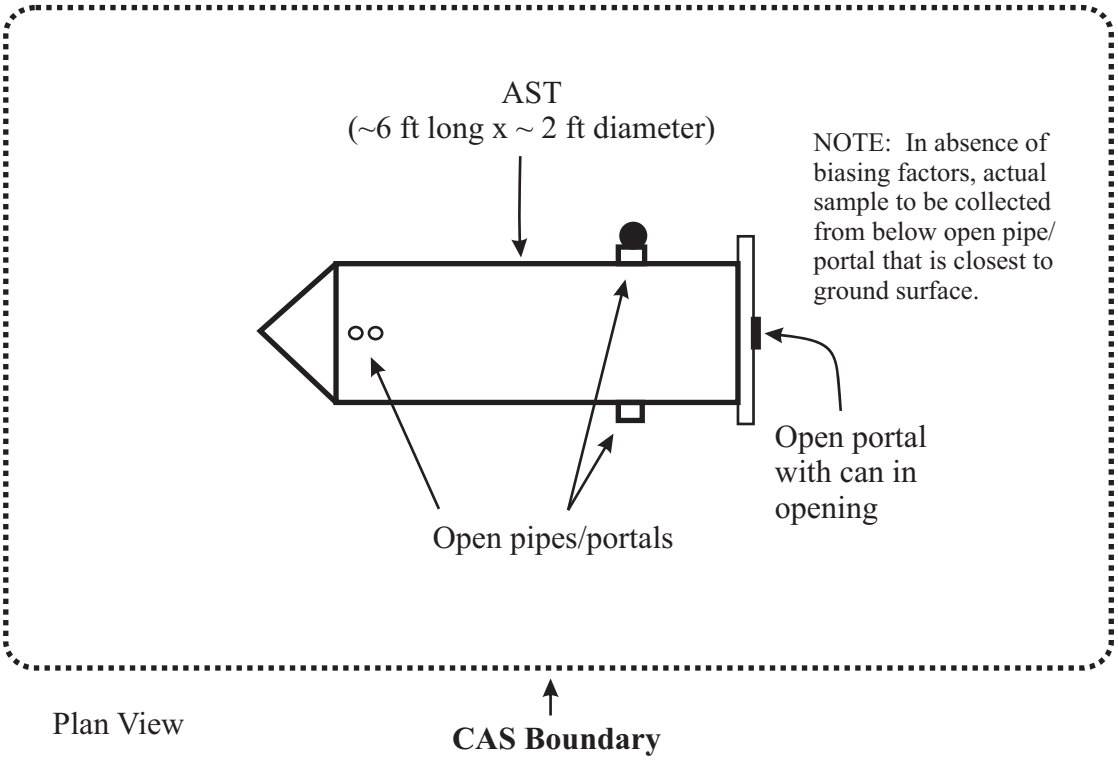


FIGURE 5
CAS 12-01-02 CAS BOUNDARY AND PROPOSED SAMPLE LOCATIONS

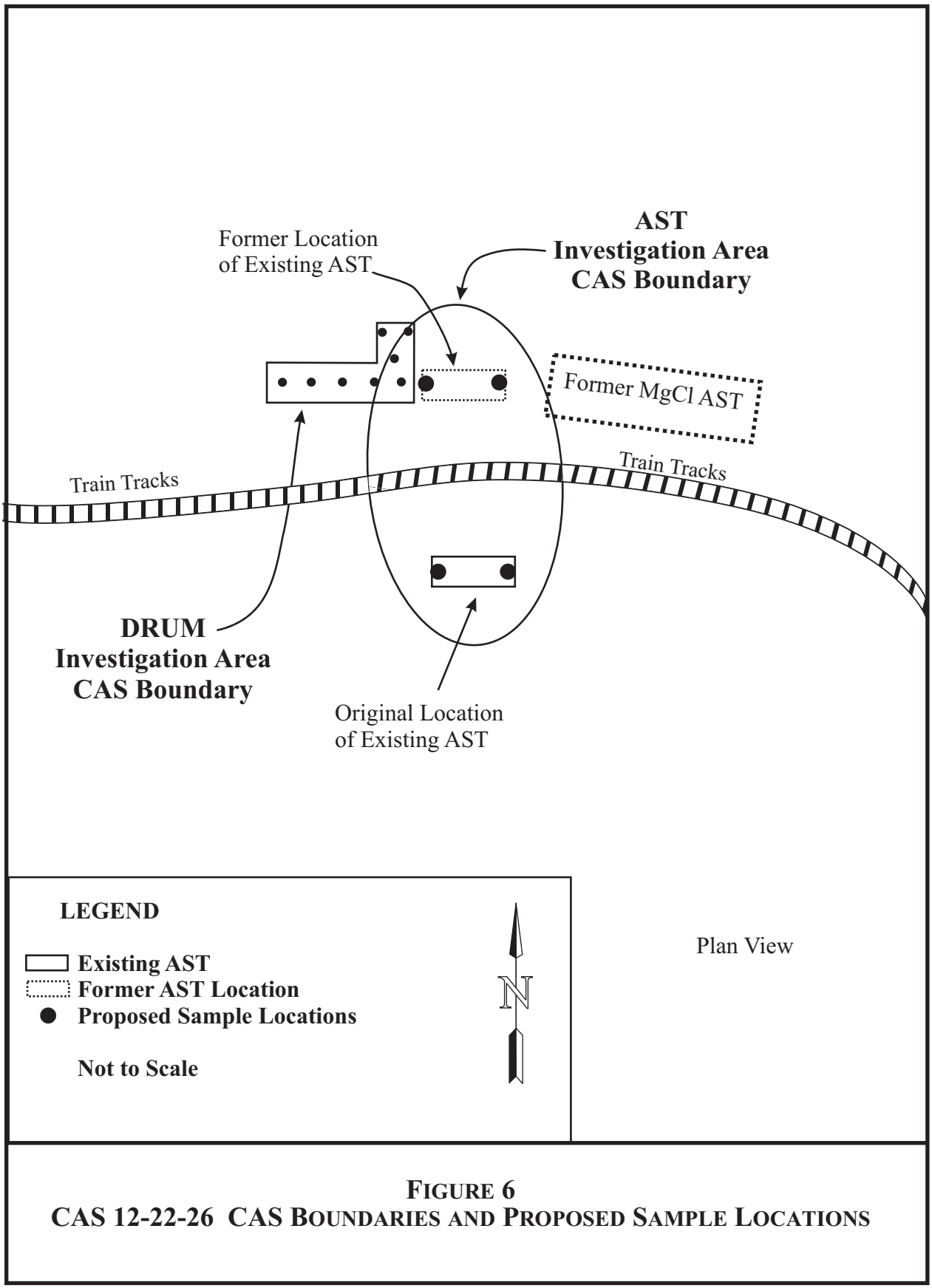


FIGURE 6
CAS 12-22-26 CAS BOUNDARIES AND PROPOSED SAMPLE LOCATIONS

3.1.5 DEVELOP THE ANALYTIC APPROACH (STEP 5)

Step 5 of the DQO process develops a decision rule statement ("If…, then…") that defines the conditions under which possible alternative actions will be chosen. In this step, the statistical parameters that characterize the population of interest are specified, the action levels are specified, and the measurement and analysis limits capable of detecting action levels are confirmed.

3.1.5.1 Population Parameters

Each sample result within the population of interest defined in Step 4 will be compared to the action levels to determine the appropriate resolution to the decisions.

3.1.5.2 Decision Rules

The decision rules for Decision I and Decision II are as follows.

Decision I

- If an AST contains no regulated waste and itself is not a regulated waste, then the AST (and contents, if any) will be disposed of at a sanitary landfill.
- If an AST contains a regulated waste or if the container itself is a regulated waste, then the AST and/or its contents will be disposed of at an appropriate facility.

Decision II

- If radiological and chemical concentrations in the soil are less than the PALs, then no further action is required. Closure is complete.
- CASs 12-01-01 and 12-01-02: If radiological and/or chemical concentrations are greater than PALs, then the appropriate FALs will be determined above which a closure action is required. If concentrations in the soil exceed the FALs, then impacted soil will be excavated and disposed of at the appropriate facility. Proceed to Decision IV.
- CAS 12-22-26: If radiological and/or chemical concentrations in the soil are greater than PALs at CAS 12-22-26, then proceed to Decision III.

Decision III (CAS 12-22-26 only)

- Radioactivity: If surface radioactivity levels are greater than in the surrounding area, then impacted soil will be excavated to a depth of 1 ft bgs and backfilled with clean fill. Because this is a URMA, subsurface radioactivity is expected to be elevated and may, indeed, increase with depth. The purpose of this effort is not to remediate the URMA or the entire area (if the local area background is elevated) but, rather, to reduce worker exposure to surface spills. This will be done by removing the surface contamination and then replacing the excavated soil with clean fill. Additional precautions are not considered necessary because intrusion into the subsurface is already restricted through the URMA and associated protocol.

- Chemicals: The "Industrial Sites Project Establishment of Final Action Levels" (NNSA/NSO, 2006) will be used to identify the FAL for any chemical with a concentration that exceeds the PAL. The following inputs and expected outcomes are anticipated:
  - Diesel-range petroleum hydrocarbons: If diesel-range petroleum hydrocarbons is the only COC, then a UR will be implemented. There may be no excavation because the area is a URMA that could have mixed fission products of unknown concentrations. Excavation of soil containing diesel-range petroleum hydrocarbons could pose significantly greater risk to human health from the buried radioactivity than would the diesel-range petroleum hydrocarbons in the surface soil. If diesel-range petroleum hydrocarbon concentrations at the surface are also a health hazard, then a layer of clean fill can be placed over the area or the use-restricted area can be fenced to keep workers from tracking surface contamination out of the area.
  - Chemicals (volatile organic compounds [VOCs], semi-volatile organic compounds [SVOCs], Metals, and PCBs): If chemical concentrations exceed the FALs, then soil will be excavated until chemical concentrations are less than the FALs or can be appropriately controlled with a UR (e.g., PCBs greater than 1 ppm but less than 50 ppm). Based on existing knowledge of the site history, there is currently no reason to believe that releases from drums would have impacted such volumes of soil that would require extensive excavation. However, if radioactivity becomes elevated such that the risk to human health is significant from radioactivity, then NNSA/NSO will contact the NDEP and propose alternative closure options, such as closure in place with URs.

Decision IV

- CASs 12-01-01 and 12-01-02: If verification sample results show that radiological and chemical concentrations are less than the FALs, then the excavation(s) will be backfilled with clean fill and closure is complete. A minimum of one sample will be collected from the base of the excavation. A minimum of two samples will be collected from sidewalls of excavations 1 ft or less in diameter, and a minimum of three samples will be collected from the sidewalls of excavations larger than 1 ft in diameter to confirm that closure is complete. Samples will only be analyzed for those contaminants that exceeded the action level and triggered the requirement to excavate soil.
- CAS 12-22-26: If verification sample results show that (1) surface radioactivity is at or less than area background concentrations, and (2) chemical concentrations (other than TPH) are less than FALs, then the excavation(s) will be backfilled with clean fill. **Radioactivity** – If excavation removed soil with elevated radiation levels, then a minimum of three samples will be collected from surface soil adjacent to the excavation to confirm that surface soil with elevated radiation levels has been removed. **Chemicals and Metals** – If excavation removed other chemicals and/or metals, then samples will be collected from the bottom and sides of the excavation to verify that remaining levels are less than action levels. A minimum of one sample will be collected from the base of the excavation. A minimum of two samples will be collected from sidewalls of excavations 1 ft or less in diameter and a minimum of three samples will be collected from the sidewalls of excavations larger than 1 ft in diameter to confirm that closure is complete. Samples will only be analyzed for those contaminants that exceeded the action level and triggered the requirement to excavate soil.

- If URs will be implemented, the use-restricted area will be fenced and/or posted, as appropriate, and signs will be erected.

3.1.5.3 Action Levels

The following PALs have been established for CAU 121:

- PCBs: The PCB action level will be 1 ppm for unrestricted access/use, as is established in 40 CFR Part 761.61 for PCB remediation waste (CFR, 2006).
- TPH: The TPH PAL will be 100 milligrams per kilogram (mg/kg), as is established in the Nevada Administrative Code (NAC), Section 445A.2272, "Contamination of soil: Establishment of action levels" (NAC, 2006).
- Chemicals: Action levels for other chemical contaminants are defined as the EPA Region 9 risk-based preliminary remediation goals for chemical constituents in industrial soils (EPA, 2004).
- Radiological: The action levels for radiological contaminants are based on the National Council on Radiation Protection (NCRP) Report No. 129 recommended screening limits for construction, commercial, and industrial land-use scenarios (NCRP, 1999) scaled to 25 millirem per year (mrem/yr) dose constraint (Murphy, 2004) and the generic guidelines for residual concentration of radionuclides in U.S. Department of Energy (DOE) Order 5400.5 (DOE, 1993). The radiological action level for solid media will be defined as the unrestricted-release criteria defined in the NV/YMP Radiological Control (RadCon) Manual (NNSA/NSO, 2004). Remaining radiological contamination, per Decision II of the decision rules, will be posted per the NV/YMP RadCon Manual (NNSA/NSO, 2004). Because of expected elevated background levels in the vicinity of G-tunnel, the action levels for radiological contaminants at CAS 12-22-26 will be the greater of either the levels described above or the local area background levels (as determined through a sample collected from the local area but outside of the CAS boundary).

3.1.5.4 Measurement and Analysis Sensitivity

The measurement and analysis methods listed in the Industrial Sites QAPP (NNSA/NV, 2002) are capable of measuring analyte concentrations at or below the corresponding action levels for each constituent.

3.1.6 Specify Performance or Acceptance Criteria (Step 6)

Step 6 of the DQO process specifies performance criteria for the decision rules. Setting tolerable limits on decision errors requires the planning team to weigh the relative effects of threats to human health and the environment, expenditure of resources, and the consequences of an incorrect decision. This section provides an assessment of the possible outcomes of DQO decisions and the impact of those outcomes if the decisions are in error.

CAU 121 will be sampled using both statistical and judgmental sampling approaches. Statistical sampling will only be performed in the drum area of CAS 12-22-26 because of the lack of biasing factors. The number and location of samples to be collected from this area will be determined based on statistical modeling that will identify a localized "hot spot" to a 95 percent confidence level. After analytical results have been evaluated, the actual data will be

reevaluated to verify that the 95 percent confidence level has been attained. Standard measurement errors will also be reduced using the same methods as in the judgmental sampling approach.

EPA's DQO guidelines state that if a judgmental sampling approach is used, quantitative statements about data quality will be limited to measurement error (EPA, 2006). Measurement error is influenced by imperfections in the measurement and analysis system. Random and systematic measurement errors are introduced in the measurement process during physical sample collection, sample handling, sample preparation, sample analysis, and data reduction. If measurement errors are not controlled, they may lead to errors in making the DQO decisions.

In general, confidence in DQO decisions based on judgmental sampling results will be established qualitatively by:

- Developing CSMs,
- Testing the validity of the CSMs based on investigation results
- Evaluating the quality of the data based on DQI parameters

3.1.6.1 Decision Errors

There are two baseline conditions (i.e., null hypotheses) and associated alternative conditions for CAU 121 depending on their location and source of potential contamination. The decision errors for each of these conditions will be reviewed separately for each of the baseline conditions.

3.1.6.1.1 CASs 12-01-01, 12-01-02, and 12-22-26 Drum Area

The baseline condition at these locations is that soil below the ASTs in CASs 12-01-01 and 12-01-02 and in the drum area of CAS 12-22-26 has not been impacted at concentrations above action levels by releases from these containers. The alternative condition is that the soil has been impacted at concentrations above action levels by releases from these containers.

False Rejection (False Positive)

This error would mean deciding that the baseline condition is false when, in fact, it is true. This error means deciding that the soil below the ASTs in CASs 12-01-01 and 12-01-02 and the drum area of CAS 12-22-26 is contaminated when it is not. The consequence of this decision is increased cost both for the closure effort and post-closure requirements (at CAS 12-22-26) that should not be needed. False positive errors are typically attributed to laboratory and/or sampling errors that could cause cross contamination. To control against cross contamination, disposable sampling equipment will be predominantly used and/or decontamination of sampling equipment will be conducted according to established and approved procedures, and only clean sample containers will be used.

At CAS 12-22-26, a false positive error could also involve excavation of soil, which would increase the potential for exposure to radioactivity in the URMA. Additional precautions that will be taken to protect workers for any excavations at CAS 12-22-26 include:

- Completing any excavation work at CAS 12-22-26 under a Radiological Work Permit (RWP), based on the area being posted as a URMA. The RWP will identify at what

radioactivity levels the risk becomes elevated and poses significant risk to workers involved in the excavation and sample collection activities.

- Performing regular radiological surveys of the excavation, the area around the excavation, and the workers.
- Stopping work immediately if radiological screening indicates that radioactivity has increased to unacceptable levels without additional precautions. Before proceeding with excavation, site conditions and waste concentrations will be reevaluated to determine if the conditions warrant the additional precautions that will be needed to continue with excavation activities.

False Acceptance (False Negative)

This error would mean deciding that the baseline condition is true when, in fact, it is false. This error means deciding that the soil below the ASTs in CASs 12-01-01 and 12-01-02 and the drum area of CAS 12-22-26 is not contaminated when, in fact, it is contaminated above action levels. The potential consequence is an increased risk to human health and the environment. This error will be controlled by meeting these criteria:

- Having a high degree of confidence that the selected sample locations will identify contamination, if present. To satisfy this criterion, samples will be collected in areas most likely to be contaminated. For the ASTs, the most likely locations will be below openings in the tanks, whether intended openings (e.g., open ports and pipes) or unintended openings (e.g., corroded holes in tank). Additional biasing factors, such as stained soil or elevated radioactivity identified through field screening, will be used to identify those areas where contamination is likely. If no biasing factors are found at the CAS 12-22-26 drum area, all samples will be collected from the grid locations identified by the VSP statistical software (PNNL, 2005) intended to identify any "hot spots" in these areas with a 95 percent confidence level.
- Analyzing samples for a full suite of parameters where historical background or analytical results are not available to identify what may be present.
- Analyzing cleanup verification samples for all compounds greater than FALs in the soil being removed.
- Having a high degree of confidence that the analyses conducted will be sufficient to detect any contamination present in the samples. To satisfy this criterion, the DQIs of sensitivity will be assessed for all analytical results to ensure that all sample analyses had detection limits that were less than or equal to the corresponding action level.
- Having a high degree of confidence that the data set is of sufficient quality. To satisfy this criterion, the data will be assessed against the DQIs of precision, accuracy, comparability, and completeness, and the appropriate QC samples will be collected as defined in the Industrial Sites QAPP (NNSA/NV, 2002).

3.1.6.1.2 CAS 12-22-26 AST Area

The baseline condition at this location is that soil below the tank at its location to the north and south sides of the train tracks has been impacted with diesel at concentrations above the action level. The alternative condition is that the soil has not been impacted at these concentrations.

False Rejection (False Positive)

This error would mean deciding that the baseline condition is false when, in fact, it is true. For the AST area of CAS 12-22-26, the error means deciding that the soil has not been impacted by diesel when it does have concentrations greater than 100 mg/kg. The error would mean that the area would not be use-restricted and could increase risk to human health from surface exposure to diesel. However, since the area is already a URMA, the expected overall impact to workers would be minimal because of the precautions and worker protections that are already in place for excavating in this area. Regardless, this error will be controlled by meeting these criteria:

- Field-screening samples for TPH to identify those areas where elevated levels of diesel are expected to be found.
- Having a high degree of confidence that the selected sample locations will identify contamination, if present. To satisfy this criterion, samples will be collected in areas most likely to be contaminated. Samples will be collected from any stained soil where the AST has been located. If no staining is present, then samples will be collected from below fill ports or other locations where a release is likely to have occurred.
- Having a high degree of confidence that the analyses conducted will be sufficient to detect any contamination present in the samples. To satisfy this criterion, the DQIs of sensitivity will be assessed for all analytical results to ensure that all sample analyses had detection limits that were less than or equal to the corresponding action level.
- Having a high degree of confidence that the data set is of sufficient quality. To satisfy this criterion, the data will be assessed against the DQIs of precision, accuracy, comparability, and completeness, and the appropriate QC samples will be collected as defined in the Industrial Sites QAPP (NNSA/NV, 2002).

False Acceptance (False Negative)

This error would mean deciding that the baseline condition is true when, in fact, it is false. For the AST area of CAS 12-22-26, the error means deciding that the soil has been impacted by diesel when it does not have concentrations greater than 100 mg/kg. The consequence of this error is increased cost both for UR implementation and post-closure monitoring, if deemed necessary. False negative errors are typically attributed to laboratory and/or sampling errors that could cause cross contamination. To control against cross contamination, disposable sampling equipment will be predominantly used and/or decontamination of sampling equipment will be conducted according to established and approved procedures, and only clean sample containers will be used.

3.1.7 DEVELOP THE PLAN FOR OBTAINING DATA (STEP 7)

Step 7 of the DQO process provides the general approach for obtaining the information necessary to resolve the decisions. Table 1 summarizes the locations where samples will be collected. Table 2 summarizes the analyses to be performed.

A judgmental sampling scheme will be implemented to select sample locations and evaluate analytical results for CASs 12-01-01, 12-01-02, and the 12-22-26 AST area. EPA's DQO guidelines state that a judgmental sampling approach can be used when there is sufficient information on the contamination sources and history to develop a valid CSM and to select

TABLE 2. SAMPLE ANALYSIS REQUIREMENTS

SAMPLE LOCATIONS	ANALYTICAL PARAMETERS [A]						
	Total VOCs [B]	Total SVOCs [C]	Total Metals [D]	PCBs [E]	TPH (gas-diesel-oil) [F]	TPH (diesel-range) [G]	Radio-nuclides [H]
CAS 12-01-01 AST contents, if any	X	X	X	X	X		X
CAS 12-01-01 soil beneath AST, if no contents	X	X	X	X	X		X
CAS 12-01-02 AST contents, if any	X	X	X	X	X		X
CAS 12-01-02 soil beneath AST, if no contents	X	X	X	X	X		X
CAS 12-22-26 drum area soil	X	X	X	X	X		X
CAS 12-22-26 soil below AST original and former locations						X	
Vicinity of CAS 12-22-26, outside of CAS boundaries							X

A - Chemical samples analyzed via EPA Test Methods for Evaluating Solid Waste, 3rd Edition, Parts 1-4, SW-846. Radionuclide samples analyzed via Manual of Environmental Measurements Laboratory Procedures, HASL-300 (DOE, 1997)
B - Analytical method 8260B
C - Analytical method 8270C
D - Analytical method 6010B
E - Analytical method 8082
F - Analytical method 8015B (gasoline/diesel/oil)
G - Analytical method 8015B (diesel-range)
H - Field screening, Gamma Spectroscopy, Gross Alpha, and Gross Beta

specific sampling locations (EPA, 2006). This design is used to confirm the existence of contamination at specific locations and to provide information about specific areas of the site. Sample locations for judgmental sampling will be determined based on process knowledge and previously acquired data.

For CASs 12-01-01 and 12-01-02, if the AST is not empty, then samples will be collected from the contents of the tank and analyzed for full-suite of parameters. Soil samples will be collected from below each AST, in a location most likely to be impacted by a release from the tank. If the tank is empty, then the soil sample will be analyzed for the full suite (as indicated in Table 2). If the tank is not empty, then the soil sample will only be analyzed for any constituents within the tank whose concentrations exceed the PALs. If sampling indicates that the soil below the AST is impacted at chemical or radiological levels greater than the PALs, then FALs will be determined for that site. If concentrations present at the site are less than the FALs, then the site will be closed with no further action taken. If concentrations exceed the FALs, then the area will be excavated to remove soil containing concentrations greater than the FALs. If needed prior to excavation, additional samples may be collected using the Geoprobe® to identify the depth of contamination, after which the impacted soil will be excavated and cleanup verification samples will be collected. Figure 7 provides a flowchart of the closure decision pathways for CASs 12-01-01 and 12-01-02.

For the CAS 12-22-26 diesel AST area, soil samples will be collected and analyzed for diesel-range petroleum hydrocarbons to identify whether soil in this area has been impacted by releases from the tank system. If diesel concentrations are less than the 100 mg/kg PAL, then no further action is needed and this portion of the site will be clean closed. If results show that diesel concentrations exceed the FAL, then additional soil samples will be collected and field-screened for TPH to identify the lateral extent of TPH that exceeds the FAL. When field screening results indicate that the boundaries of the area exceeding the FAL have been identified, then a minimum of three samples will be collected and submitted for laboratory analysis to confirm that the area containing diesel in excess of the FAL has been bounded. A UR will be implemented for this area.

A combination of statistical and judgmental sampling will be implemented to select sample locations at the CAS 12-22-26 drum area and to evaluate whether results confirm that an adequate number of samples has been collected. A minimum of eight samples will be collected from random locations within the drum storage area. If biasing factors are identified, additional biased samples will be collected from these locations. After results have been received, they will be reviewed to verify that they have achieved the 95 percent confidence level. If results indicate that additional samples are necessary to adequately characterize the areas of interest, then additional samples will be collected for the parameters of interest. Soil samples will be collected from the CAS 12-22-26 drum area and analyzed for the full suite of parameters.

A flowchart of the closure decision pathway for CAS 12-22-26 is presented in Figure 8. Because of the URMA beneath this site, attempts will be made to keep excavation of this area to a minimum.

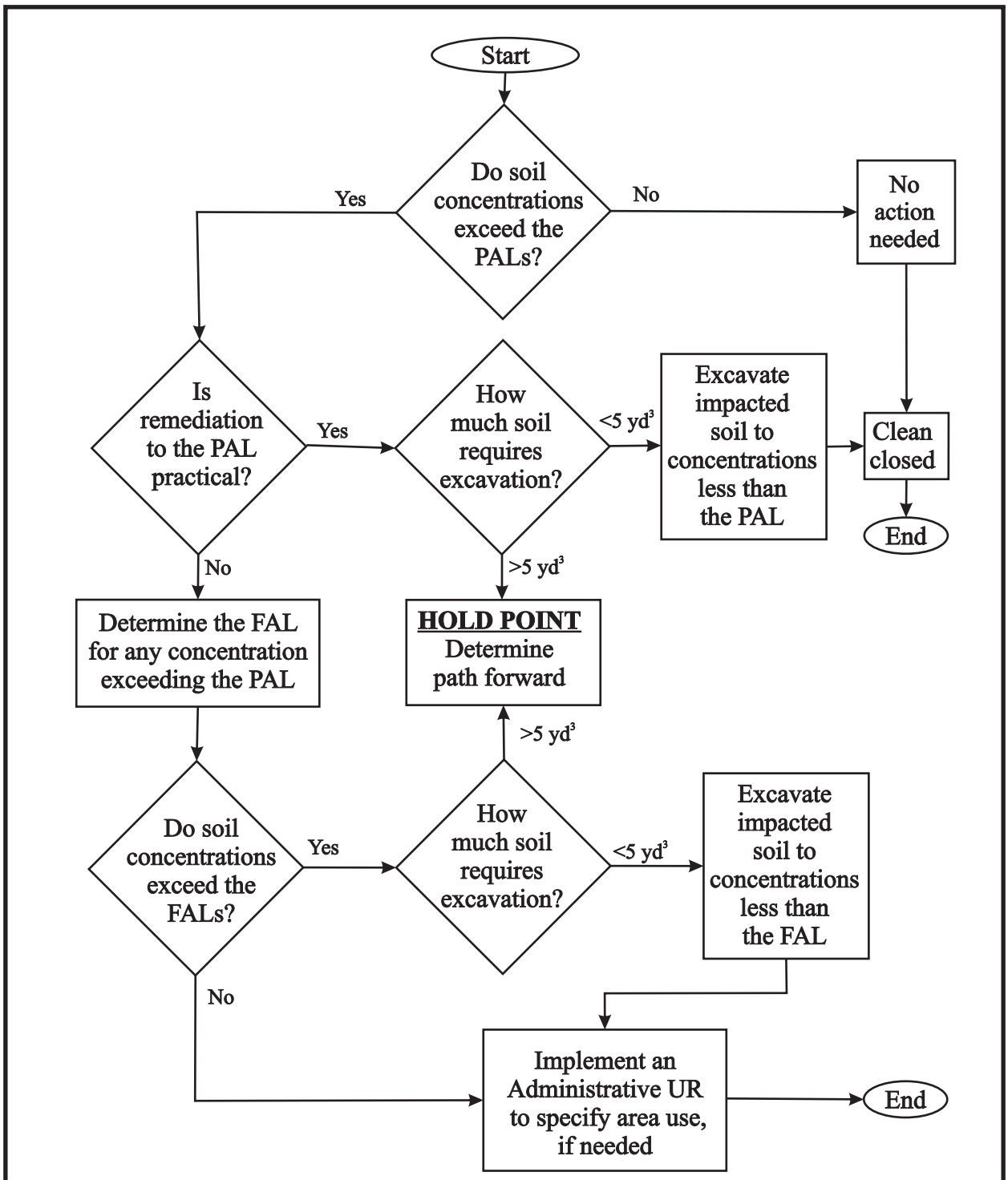


FIGURE 7
DECISION FLOWCHART FOR CASS 12-01-01 AND 12-01-02

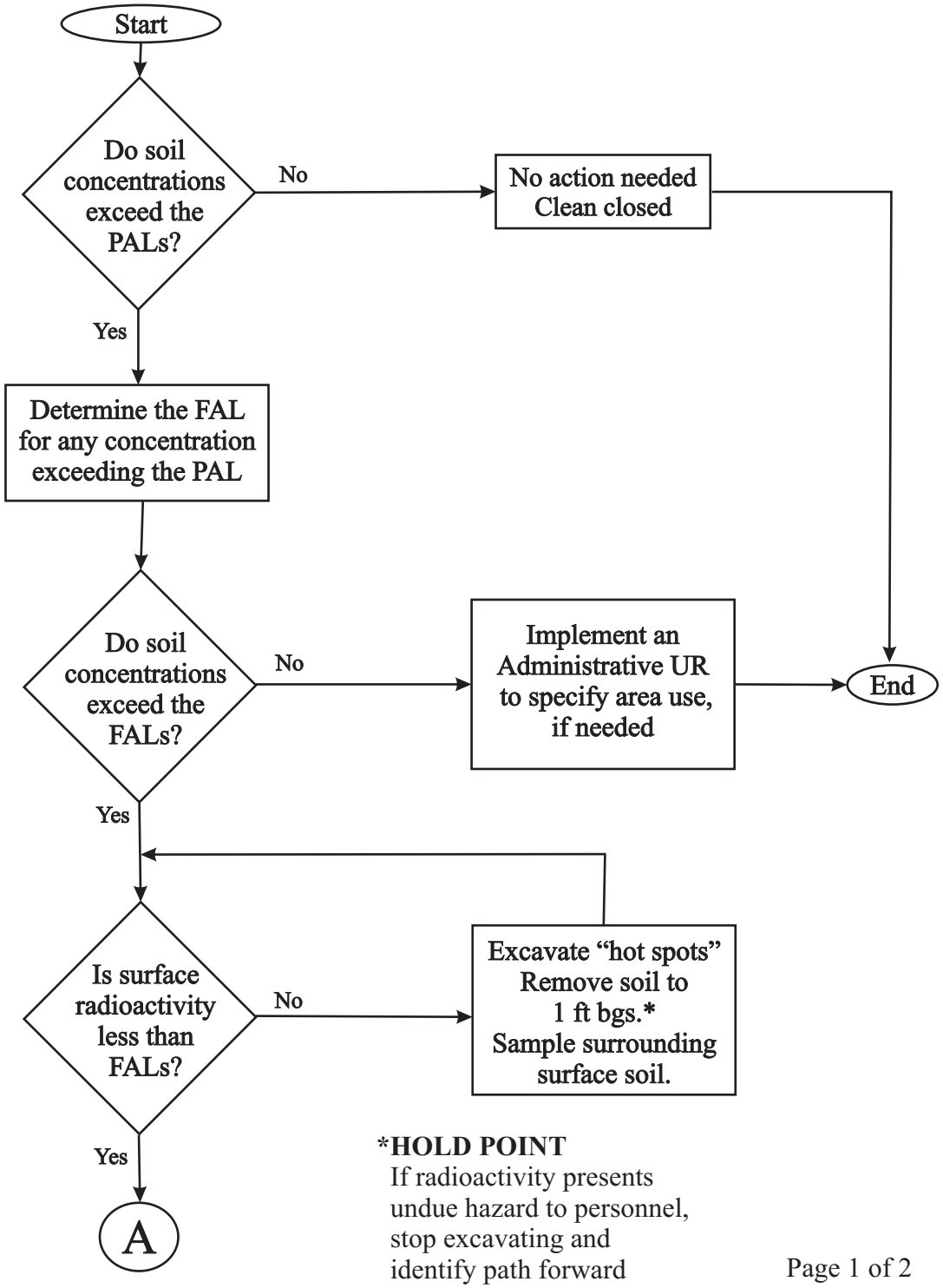


FIGURE 8
DECISION FLOWCHART FOR CAS 12-22-26

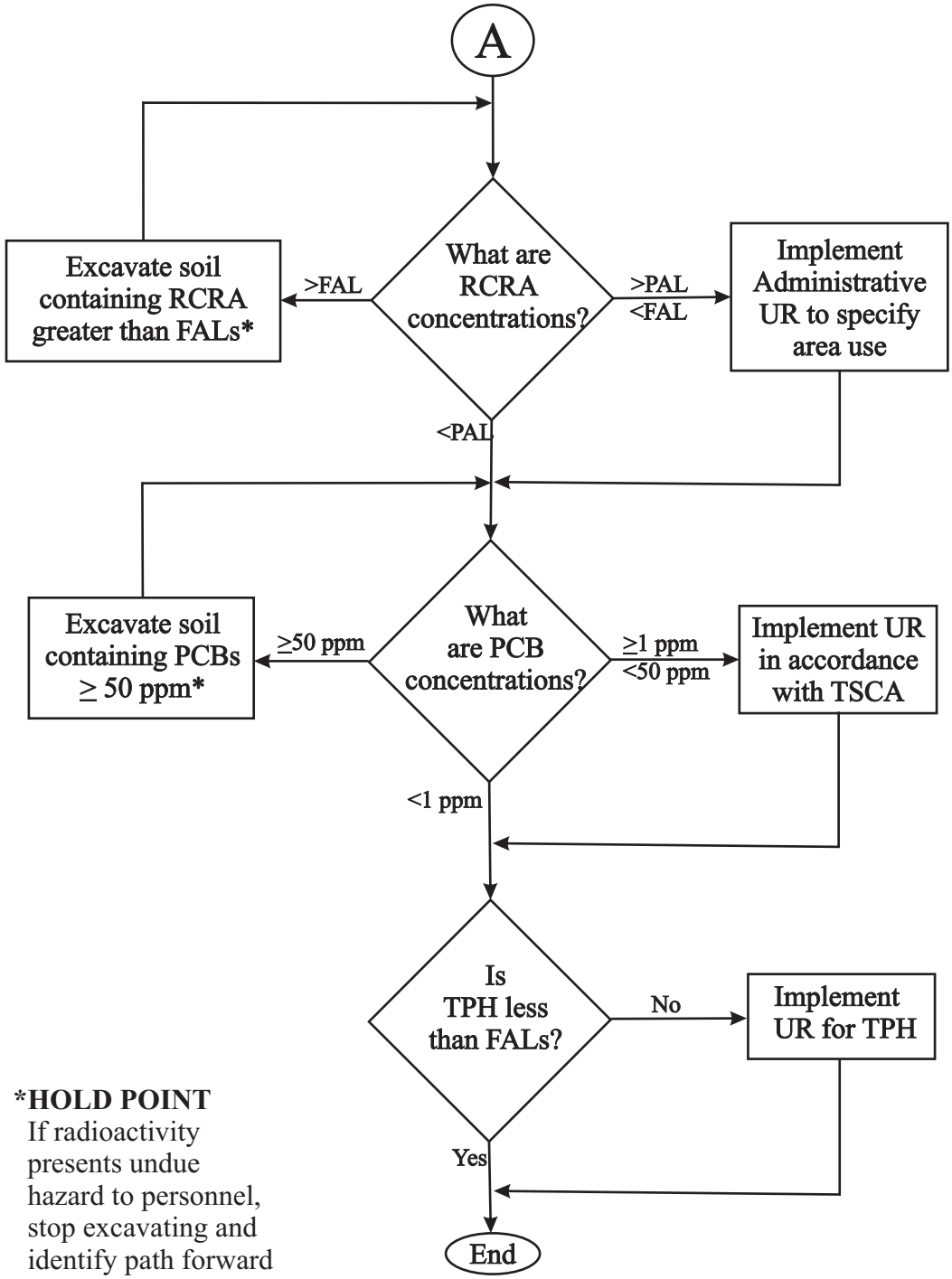


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FIGURE 8 (CONT'D)
DECISION FLOWCHART FOR CAS 12-22-26

3.2 RESULTS OF THE DQO ANALYSIS

3.2.1 ACTION LEVEL DETERMINATION AND BASIS

The PALs for CAU 121 will be identified based on the following:

- Chemicals - The chemical PALs are defined as the risk-based preliminary remediation goals for chemical constituents in industrial soils (EPA, 2004), with exceptions as described below.
- PCBs - The PAL for PCBs will be 1 ppm, as identified in Title 40 CFR Part 761.61 (CFR, 2006) for unrestricted use.
- TPH - The TPH PAL will be 100 mg/kg, as is established in the NAC, Section 445A.2272, "Contamination of soil: Establishment of action levels," (NAC, 2006).
- Radioactivity - The PALs for radiological contaminants are based on the NCRP Report No. 129 recommended screening limits for construction, commercial, and industrial land-use scenarios (NCRP, 1999) scaled to 25 mrem/yr dose constraint (Murphy, 2004) and the generic guidelines for residual concentration of radionuclides in DOE Order 5400.5 (DOE, 1993). The radiological action level for solid media will be defined as the unrestricted-release criteria defined in the NV/YMP RadCon Manual (NNSA/NSO, 2004). Remaining radiological contamination, per Decision II of the decision rules, will be posted per the NV/YMP RadCon Manual (NNSA/NSO, 2004). For CAS 12-22-26, the PALs will be the greater of the levels described above, or the local area background levels, as determined through a sample collected from the local area but outside of the CAS boundary.

If results show that chemical or radiological concentrations exceed PALs, then FALs will be determined using the process identified in the "Industrial Sites Project Establishment of Final Action Levels" (NNSA/NSO, 2006). Closure actions to be taken at each site depend on the CAS-specific FALs.

3.2.2 HYPOTHESIS TEST

Only valid data from radiological surveys and laboratory analytical results will be used to determine if contamination is present. The null hypothesis is that soil below the ASTs in CASs 12-01-01 and 12-01-02 and the (former) drums in CAS 12-22-26 has not been impacted at concentrations above action levels by releases from these containers, while soil in the AST area at CAS 12-22-26 has been impacted with diesel at concentrations greater than 100 mg/kg.

The two types of decision errors are false rejection (i.e., false positive) and false acceptance (i.e., false negative). A false rejection decision error would occur:

1. If contamination is determined to be present above the action levels at CASs 12-01-01, 12-01-02, and below drums at 12-22-26 when it actually is not, resulting in increased costs for unnecessary remediation and increased risk to human health by excavating in a URMA, and/or
2. If TPH is determined not to be present above the action levels below and around the CAS 12-22-26 AST when it is, resulting in the area not being use-restricted for TPH (although it remains posted as a URMA).

A false acceptance (i.e., false negative) decision error would occur:

1. If contamination is determined to not be present above the action levels at CASs 12-01-01, 12-01-02, and the drum area of CAS 12-22-26 when it actually is, resulting in increased risk to human health and the environment by leaving impacted soil, and/or
2. If diesel concentrations are determined to be greater than the action level in the CAS 12-22-26 AST area but they are not, resulting in increased costs to establish the UR and for post-closure monitoring of the area.

3.2.3 STATISTICAL MODEL

Individual sample results will be compared to action levels and statistical models will not apply for determining the actions at any of the CAU 121 CASs. CASs 12-01-01, 12-01-02, and the AST area of 12-22-26 will all be sampled at locations most likely impacted by releases from the tanks, as determined through biasing factors at each site.

The drum area of CAS 12-22-26 will be sampled at statistically determined locations because there are no biasing factors in this area. The size and configuration of the drum area was entered into the VSP statistical software program (PNNL, 2005). A sampling grid was provided by the program that should identify a 2½-ft "hot spot" within this area (approximate diameter of drum) to a 95-percent confidence level. Samples will be collected from the grid locations and results will be input back into the program to verify that this 95-percent confidence level is achieved.

3.2.4 DESIGN DESCRIPTION/OPTION

Biased (judgmental) samples will be collected, as summarized in Table 1. These locations were chosen based on process knowledge of the sites. Systematic radiological surveys will be conducted to identify radiological contamination and background concentrations. Where biasing factors are not present, samples will be collected from statistically determined sample locations designed to identify "hot spots" to a 95-percent confidence level.

3.2.5 CSM

Two CSMs are presented for CAU 121. The first CSM applies to CASs 12-01-01 and 12-01-02, and to the former drum area at CAS 12-22-26. This CSM assumes that the existing ASTs were deposited at their present location after they had been emptied, and that the drums did not release their contents. The alternate CSM assumes that contents of the ASTs (or drums) have been released to the environment. Because the ASTs do not appear to have been operational in their current location, any releases from these ASTs, or the drums, should have resulted in localized releases of limited quantities to the surface soil with limited migration into the subsurface soil. The primary and alternate CSMs for these CASs are presented in Figure 2.

The second CSM applies to the diesel AST of CAS 12-22-26. This CSM assumes that diesel has been released at both operational locations of the diesel AST as a result of spilling and overfilling when fueling locomotives from this AST. Because the site is a URMA, radioactive materials are assumed to be buried underneath this CAS. This CSM is depicted in Figure 3. The alternate CSM assumes that soil has not been impacted by diesel from the AST and is similar to the primary CSM for CASs 12-01-01 and 12-01-02.

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APPENDIX B

SAMPLE ANALYTICAL RESULTS

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APPENDIX B. ANALYTICAL RESULTS CROSS-REFERENCE LIST

SAMPLE TYPE	CAS	SAMPLE LOCATION	SAMPLE NUMBER	SDG	
				CHEMICAL	RADIOLOGICAL
Characterization	12-01-01	Beneath open tank portal	120101-1	V3056	V3057
		Field duplicate of 120101-1	120101-2		
	12-01-02	Beneath open tank portal	120102-1	V3056	V3057
	12-22-26	Drum area, grid location #1	122226-1	V3097	V3098
		Drum area, grid location #2	122226-2		
		Drum area, grid location #3	122226-3		
		Drum area, grid location #4	122226-4		
		Drum area, grid location #5	122226-5		
		Drum area, grid location #6	122226-6		
		Drum area, grid location #7	122226-7		
		Drum area, grid location #8	122226-8		
		Drum area, field duplicate of grid location #8	122226-9		
		Tank area, north side of tracks	122226-10		N/A
		Tank area, north side of tracks	122226-11		
		Tank area, north side of tracks	122226-12		
		Tank area, north side of tracks	122226-13		
		Tank area, north side of tracks	122226-14		
		Background radiological sample	122226-15	N/A	V3098
		Trip Blank (VOCs only)	122226-TB	V3097	N/A

CAS – Corrective Action Site
N/A – Not applicable: According to the plan, these samples did not require this analysis.
SDG – sample delivery group
VOC – volatile organic compound

APPENDIX B. ANALYTICAL RESULTS CROSS-REFERENCE LIST

SAMPLE TYPE	CAS	SAMPLE LOCATION	SAMPLE NUMBER	SDG	
Cleanup	12-01-02	West side of excavation	120102-V1	V3106	N/A
		West side of excavation, field duplicate	120102-V2		
		North side of excavation	120102-V3		
		East side of excavation	120102-V4		
		South side of excavation	120102-V5		
		Base of excavation, in the center	120102-V6		
	12-01-02	East side of excavation	120102-V4A	V3112	N/A
		East side of excavation, field duplicate	120102-V5A		
	12-01-02	West side of excavation	120102-V1B	V3130	N/A
		North side of excavation	120102-V2B		
		East side of excavation	120102-V3B		
		South side of excavation	120102-V4B		
		South side of excavation, field duplicate	120102-V5B		
		Base of excavation, in the center	120102-V6B		

CAS – Corrective Action Site
N/A – Not applicable: According to the plan, these samples did not require this analysis.
SDG – sample delivery group

Sample Delivery Group V3056

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Lionville Laboratory, Inc.
Volatiles by GC/MS, HSL List

RFW Batch Number: 0802L611 Client: NSTEC V3056 Work Order: 60052001001 Page: 1a Report Date: 03/11/08 11:04

	Cust ID:	120101-1	120101-1	120101-1	120102-1	120101-2	CAU 121-TB
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	WATER
	D.F.:	0.877	0.926	1.00	1.02	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/L
Surrogate Recovery	Toluene-d8	112 %	100 %	96 %	99 %	101 %	102 %
	Bromofluorobenzene	150 * %	95 %	97 %	115 %	115 %	105 %
	1,2-Dichloroethane-d4	112 %	105 %	97 %	110 %	107 %	119 %
Chloromethane		10 U	86 %	82 %	12 U	12 U	10 U
Bromomethane		10 U	108 %	115 %	12 U	12 U	10 U
Vinyl Chloride		10 U	98 %	104 %	12 U	12 U	10 U
Chloroethane		10 U	126 %	132 %	12 U	12 U	10 U
Methylene Chloride		24 B	43 * %	49 * %	14 B	15 B	4 JB
Acetone		10 U	148 %	137 %	12 U	12 U	10 U
Carbon Disulfide		5 U	99 %	99 %	6 U	6 U	5 U
1,1-Dichloroethene		5 U	96 %	94 %	6 U	6 U	5 U
1,1-Dichloroethane		5 U	98 %	97 %	6 U	6 U	5 U
1,2-Dichloroethene (total)		5 U	91 %	89 %	6 U	6 U	5 U
Chloroform		5 U	99 %	97 %	6 U	6 U	5 U
1,2-Dichloroethane		5 U	103 %	91 %	6 U	6 U	5 U
2-Butanone		10 U	126 %	135 %	12 U	12 U	10 U
1,1,1-Trichloroethane		5 U	102 %	88 %	6 U	6 U	5 U
Carbon Tetrachloride		5 U	96 %	86 %	6 U	6 U	5 U
Bromodichloromethane		5 U	101 %	88 %	6 U	6 U	5 U
1,2-Dichloropropane		5 U	99 %	95 %	6 U	6 U	5 U
cis-1,3-Dichloropropene		5 U	100 %	91 %	6 U	6 U	5 U
Trichloroethene		5 U	93 %	89 %	6 U	6 U	5 U
Dibromochloromethane		5 U	99 %	96 %	6 U	6 U	5 U
1,1,2-Trichloroethane		5 U	96 %	92 %	6 U	6 U	5 U
Benzene		5 U	94 %	89 %	6 U	6 U	5 U
Trans-1,3-Dichloropropene		5 U	102 %	90 %	6 U	6 U	5 U
Bromoform		5 U	87 %	89 %	6 U	6 U	5 U
4-Methyl-2-pentanone		10 U	94 %	92 %	12 U	12 U	10 U
2-Hexanone		10 U	122 %	112 %	12 U	12 U	10 U
Tetrachloroethene		5 U	92 %	88 %	6 U	6 U	5 U
1,1,2,2-Tetrachloroethane		5 U	94 %	96 %	6 U	6 U	5 U
Toluene		5 U	106 %	95 %	6 U	6 U	5 U

*= Outside of EPA CLP QC limits.

00000015

	Cust ID:	120101-1	120101-1	120101-1	120102-1	120101-2	CAU 121-TB
	RFW#:	001	001 MS	001 MSD	002	003	004
Chlorobenzene		5 U	96 %	90 %	6 U	6 U	5 U
Ethylbenzene		5 U	98 %	90 %	6 U	6 U	5 U
Styrene		5 U	87 %	87 %	6 U	6 U	5 U
Xylenes (total)		5 U	89 %	86 %	6 U	6 U	5 U
cis-1,2-dichloroethene		5 U	94 %	92 %	6 U	6 U	5 U
trans-1,2-dichloroethene		5 U	89 %	86 %	6 U	6 U	5 U

*= Outside of EPA CLP QC limits.

Lionville Laboratory, Inc.
Volatiles by GC/MS, HSL List
Report Date: 03/11/08 11:04

RFW Batch Number: 0802L611 Client: NSTEC V3056 Work Order: 60052001001 Page: 2a

	Cust ID:	VBLKUK		VBLKUK BS		VBLKUD		VBLKUD BS	
Sample Information	RFW#:	08LVK031-MB1		08LVK031-MB1		08LVG031-MB1		08LVG031-MB1	
	Matrix:	SOIL		SOIL		WATER		WATER	
	D.F.:	1.00		1.00		1.00		1.00	
	Units:	ug/Kg		ug/Kg		ug/L		ug/L	
Surrogate Recovery	Toluene-d8	100	%	109	%	100	%	108	%
	Bromofluorobenzene	112	%	96	%	106	%	110	%
	1,2-Dichloroethane-d4	111	%	106	%	106	%	108	%
Chloromethane		10	U	77	%	10	U	87	%
Bromomethane		10	U	120	%	10	U	94	%
Vinyl Chloride		10	U	105	%	10	U	95	%
Chloroethane		10	U	136	%	10	U	138	%
Methylene Chloride		21		48 *	%	2	J	83	%
Acetone		10	U	253	%	10	U	54	%
Carbon Disulfide		5	U	103	%	5	U	112	%
1,1-Dichloroethene		5	U	97	%	5	U	98	%
1,1-Dichloroethane		5	U	98	%	5	U	100	%
1,2-Dichloroethene (total)		5	U	92	%	5	U	92	%
Chloroform		5	U	99	%	5	U	97	%
1,2-Dichloroethane		5	U	105	%	5	U	102	%
2-Butanone		10	U	188	%	10	U	59	%
1,1,1-Trichloroethane		5	U	98	%	5	U	98	%
Carbon Tetrachloride		5	U	97	%	5	U	98	%
Bromodichloromethane		5	U	101	%	5	U	98	%
1,2-Dichloropropane		5	U	98	%	5	U	101	%
cis-1,3-Dichloropropene		5	U	111	%	5	U	105	%
Trichloroethene		5	U	94	%	5	U	96	%
Dibromochloromethane		5	U	100	%	5	U	97	%
1,1,2-Trichloroethane		5	U	107	%	5	U	97	%
Benzene		5	U	96	%	5	U	99	%
Trans-1,3-Dichloropropene		5	U	114	%	5	U	107	%
Bromoform		5	U	98	%	5	U	96	%
4-Methyl-2-pentanone		10	U	137	%	10	U	101	%
2-Hexanone		10	U	174	%	10	U	70	%
Tetrachloroethene		5	U	102	%	5	U	93	%
1,1,2,2-Tetrachloroethane		5	U	100	%	5	U	102	%
Toluene		5	U	107	%	5	U	102	%

*= Outside of EPA CLP QC limits.

	Cust ID: VBLKUK		VBLKUK BS		VBLKUD		VBLKUD BS	
	RFW#: 08LVK031-MB1		08LVK031-MB1		08LVG031-MB1		08LVG031-MB1	
Chlorobenzene	5	U	98	%	5	U	97	%
Ethylbenzene	5	U	98	%	5	U	100	%
Styrene	5	U	92	%	5	U	102	%
Xylenes (total)	5	U	94	%	5	U	101	%
cis-1,2-dichloroethene	5	U	95	%	5	U	92	%
trans-1,2-dichloroethene	5	U	89	%	5	U	92	%

*= Outside of EPA CLP QC limits.

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

Report Date: 03/31/08 08:06

RFW Batch Number: 0802L611 Client: NSTEC V3056 Work Order: 60052001001 Page: 1a

	Cust ID:	120101-1	120101-1	120101-1	120102-1	120102-1	120101-2
Sample Information	RFW#:	001	001 MS	001 MSD	002	002 DL	003
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	2.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Nitrobenzene-d5	58 %	46 %	49 %	61 %	63 %	48 %
	2-Fluorobiphenyl	71 %	77 %	72 %	78 %	87 %	66 %
	Terphenyl-d14	79 %	83 %	77 %	76 %	108 %	75 %
	Phenol-d5	61 %	64 %	64 %	63 %	67 %	56 %
	2-Fluorophenol	62 %	60 %	63 %	66 %	67 %	53 %
	2,4,6-Tribromophenol	64 %	70 %	54 %	47 %	53 %	75 %
		fl	fl	fl	fl	fl	fl
Phenol		390 U	65 %	69 %	380 U	760 U	400 U
bis(2-Chloroethyl)ether		390 U	49 * %	53 %	380 U	760 U	400 U
2-Chlorophenol		390 U	73 %	68 %	380 U	760 U	400 U
1,3-Dichlorobenzene		390 U	55 %	58 %	380 U	760 U	400 U
1,4-Dichlorobenzene		390 U	53 %	58 %	380 U	760 U	400 U
1,2-Dichlorobenzene		390 U	60 %	61 %	380 U	760 U	400 U
2-Methylphenol		390 U	66 %	76 %	380 U	760 U	400 U
2,2'-oxybis(1-Chloropropane)		390 U	48 * %	57 %	380 U	760 U	400 U
3/4 Methylphenol		390 U	67 %	75 %	380 U	760 U	400 U
N-Nitroso-di-n-propylamine		390 U	58 %	57 %	380 U	760 U	400 U
Hexachloroethane		390 U	49 * %	54 %	380 U	760 U	400 U
Nitrobenzene		390 U	45 * %	46 * %	380 U	760 U	400 U
Isophorone		390 U	52 * %	57 * %	380 U	760 U	400 U
2-Nitrophenol		390 U	58 %	53 %	380 U	760 U	400 U
2,4-Dimethylphenol		390 U	42 * %	50 %	380 U	760 U	400 U
bis(2-Chloroethoxy)methane		390 U	50 %	51 %	380 U	760 U	400 U
2,4-Dichlorophenol		390 U	68 %	60 %	380 U	760 U	400 U
1,2,4-Trichlorobenzene		390 U	59 * %	54 * %	380 U	760 U	400 U
Naphthalene		390 U	51 %	51 %	380 U	760 U	400 U
4-Chloroaniline		390 U	32 %	42 %	380 U	760 U	400 U
Hexachlorobutadiene		390 U	67 %	59 %	380 U	760 U	400 U
4-Chloro-3-methylphenol		390 U	59 * %	60 %	380 U	760 U	400 U
2-Methylnaphthalene		390 U	58 * %	57 * %	380 U	760 U	400 U
Hexachlorocyclopentadiene		390 U	54 %	50 %	380 U	760 U	400 U
2,4,6-Trichlorophenol		390 U	70 %	56 %	380 U	760 U	400 U
2,4,5-Trichlorophenol		980 U	86 %	74 %	950 U	1900 U	990 U

*= Outside of EPA CLP QC limits.

Cust ID:	120101-1	120101-1	120101-1	120102-1	120102-1	120101-2
RFW#:	001	001 MS	001 MSD	002	002 DL	003
2-Chloronaphthalene	390 U	74 %	70 %	380 U	760 U	400 U
2-Nitroaniline	980 U	62 %	73 %	950 U	1900 U	990 U
Dimethylphthalate	390 U	78 %	83 %	380 U	760 U	400 U
Acenaphthylene	390 U	73 %	73 %	380 U	760 U	400 U
2,6-Dinitrotoluene	390 U	79 %	84 %	380 U	760 U	400 U
3-Nitroaniline	980 U	61 %	78 %	950 U	1900 U	990 U
Acenaphthene	390 U	69 %	73 %	120 J	140 JD	400 U
2,4-Dinitrophenol	980 U	60 %	47 %	950 U	1900 U	990 U
4-Nitrophenol	980 U	66 %	67 %	950 U	1900 U	990 U
Dibenzofuran	390 U	77 %	80 %	380 U	760 U	400 U
2,4-Dinitrotoluene	390 U	86 %	96 %	380 U	760 U	400 U
Diethylphthalate	390 U	74 %	88 %	380 U	760 U	400 U
4-Chlorophenyl-phenylether	390 U	81 %	84 %	380 U	760 U	400 U
Fluorene	390 U	76 %	82 %	46 J	55 JD	400 U
4-Nitroaniline	980 U	65 %	92 %	950 U	1900 U	990 U
4,6-Dinitro-2-methylphenol	980 U	59 %	50 %	950 U	1900 U	990 U
N-Nitrosodiphenylamine (1)	390 U	59 %	58 %	380 U	760 U	400 U
4-Bromophenyl-phenylether	390 U	75 %	69 %	380 U	760 U	400 U
Hexachlorobenzene	390 U	93 %	88 %	380 U	760 U	400 U
Pentachlorophenol	980 U	77 %	42 %	950 U	1900 U	990 U
Phenanthrene	390 U	75 %	73 %	1300	1400 D	400 U
Anthracene	390 U	79 %	79 %	170 J	180 JD	400 U
Carbazole	390 U	79 %	88 %	150 J	150 JD	400 U
Di-n-butylphthalate	390 U	70 %	84 %	44 J	47 JD	400 U
Fluoranthene	390 U	84 %	96 %	3800 E	3800 D	400 U
Pyrene	390 U	74 %	68 %	3300 E	4400 D	400 U
Butylbenzylphthalate	390 U	65 %	74 %	970	1100 D	400 U
3,3'-Dichlorobenzidine	390 U	11 * %	29 %	380 U	760 U	400 U
Benzo(a)anthracene	390 U	78 %	77 %	1600	1800 D	400 U
Chrysene	390 U	78 %	78 %	2100	2200 D	400 U
bis(2-Ethylhexyl)phthalate	35 J	64 %	75 %	66 J	78 JD	32 J
Di-n-octyl phthalate	390 U	60 %	70 %	380 U	760 U	400 U
Benzo(b)fluoranthene	390 U	77 %	75 %	1100	1400 D	400 U
Benzo(k)fluoranthene	390 U	78 %	74 %	1400	1800 D	400 U
Benzo(a)pyrene	390 U	77 %	75 %	1500	1700 D	400 U
Indeno(1,2,3-cd)pyrene	390 U	81 %	74 %	870	970 D	400 U
Dibenz(a,h)anthracene	390 U	83 %	75 %	390	460 JD	400 U
Benzo(g,h,i)perylene	390 U	82 %	73 %	880	1000 D	400 U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

Lionville Laboratory, Inc.
Semivolatiles by GC/MS, HSL List

RFW Batch Number: 0802L611 Client: NSTEC V3056 Work Order: 60052001001 Report Date: 03/31/08 08:06 Page: 2a

		Cust ID:	SBLKSV		SBLKSV BS	
Sample Information		RFW#:	08LE0098-MB1		08LE0098-MB1	
		Matrix:	SOIL		SOIL	
		D.F.:	1.00		1.00	
		Units:	ug/Kg		ug/Kg	
Surrogate Recovery	Nitrobenzene-d5		76	%	83	%
	2-Fluorobiphenyl		79	%	96	%
	Terphenyl-d14		86	%	87	%
	Phenol-d5		80	%	94	%
	2-Fluorophenol		75	%	93	%
	2,4,6-Tribromophenol		26	%	58	%
Phenol			330	U	91	%
bis(2-Chloroethyl)ether			330	U	76	%
2-Chlorophenol			330	U	96	%
1,3-Dichlorobenzene			330	U	75	%
1,4-Dichlorobenzene			330	U	78	%
1,2-Dichlorobenzene			330	U	86	%
2-Methylphenol			330	U	92	%
2,2'-oxybis(1-Chloropropane)			330	U	77	%
3/4 Methylphenol			330	U	97	%
N-Nitroso-di-n-propylamine			330	U	85	%
Hexachloroethane			330	U	82	%
Nitrobenzene			330	U	74	%
Isophorone			330	U	85	%
2-Nitrophenol			330	U	84	%
2,4-Dimethylphenol			330	U	82	%
bis(2-Chloroethoxy)methane			330	U	79	%
2,4-Dichlorophenol			330	U	91	%
1,2,4-Trichlorobenzene			330	U	81	%
Naphthalene			330	U	81	%
4-Chloroaniline			330	U	61	%
Hexachlorobutadiene			330	U	86	%
4-Chloro-3-methylphenol			330	U	100	%
2-Methylnaphthalene			330	U	91	%
Hexachlorocyclopentadiene			330	U	75	%
2,4,6-Trichlorophenol			330	U	76	%
2,4,5-Trichlorophenol			830	U	96	%

*= Outside of EPA CLP QC limits.

Cust ID: SBLKSV SBLKSV BS

RFW#: 08LE0098-MB1 08LE0098-MB1

2-Chloronaphthalene	330	U	93		%
2-Nitroaniline	830	U	104		%
Dimethylphthalate	330	U	96		%
Acenaphthylene	330	U	95		%
2,6-Dinitrotoluene	330	U	98		%
3-Nitroaniline	830	U	128		%
Acenaphthene	330	U	88		%
2,4-Dinitrophenol	830	U	17	*	%
4-Nitrophenol	830	U	106		%
Dibenzofuran	330	U	101		%
2,4-Dinitrotoluene	330	U	109		%
Diethylphthalate	330	U	97		%
4-Chlorophenyl-phenylether	330	U	88		%
Fluorene	330	U	88		%
4-Nitroaniline	830	U	150	*	%
4,6-Dinitro-2-methylphenol	830	U	31	*	%
N-Nitrosodiphenylamine (1)	330	U	81		%
4-Bromophenyl-phenylether	330	U	77		%
Hexachlorobenzene	330	U	105		%
Pentachlorophenol	830	U	38		%
Phenanthrene	330	U	100		%
Anthracene	330	U	105		%
Carbazole	330	U	134	*	%
Di-n-butylphthalate	330	U	103		%
Fluoranthene	330	U	111		%
Pyrene	330	U	81		%
Butylbenzylphthalate	330	U	94		%
3,3'-Dichlorobenzidine	330	U	106		%
Benzo(a)anthracene	330	U	100		%
Chrysene	330	U	104		%
bis(2-Ethylhexyl)phthalate	330	U	113		%
Di-n-octyl phthalate	330	U	87		%
Benzo(b)fluoranthene	330	U	94		%
Benzo(k)fluoranthene	330	U	96		%
Benzo(a)pyrene	330	U	101		%
Indeno(1,2,3-cd)pyrene	330	U	139		%
Dibenz(a,h)anthracene	330	U	148	*	%
Benzo(g,h,i)perylene	330	U	135		%

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

U.S. EPA

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

1011

Lab Name: LIONVILLE_LABORATORY_____ Contract: 60052_____
Lab Code: LVLI__ Case No.: 121__ SAS No.: _____ SDG No.: V3056_
Matrix (soil/water): SOIL_ Lab Sample ID: 0802L611-001
Level (low/med): LOW__ Date Received: 02/15/08
% Solids: _84.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	2.6			P
7440-39-3	Barium	123			P
7440-43-9	Cadmium	0.37	B		P
7440-47-3	Chromium	3.9			P
7439-92-1	Lead	9.4			P
7439-97-6	Mercury	0.01	U		AV
7782-49-2	Selenium	0.63	U		P
7440-22-4	Silver	0.10	U		P

Color Before: _____ Clarity Before: _____ Texture: _____
Color After: _____ Clarity After: _____ Artifacts: _____

Comments:
120101-1

FORM I - IN

U.S. EPA

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

1021

Lab Name: LIONVILLE_LABORATORY_____ Contract: 60052_____
Lab Code: LVLI__ Case No.: 121__ SAS No.: _____ SDG No.: V3056_
Matrix (soil/water): SOIL_ Lab Sample ID: 0802L611-002
Level (low/med): LOW_ Date Received: 02/15/08
% Solids: _87.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	1.9	B		P
7440-39-3	Barium	124			P
7440-43-9	Cadmium	0.20	B		P
7440-47-3	Chromium	2.4			P
7439-92-1	Lead	24.1			P
7439-97-6	Mercury	0.01	U		AV
7782-49-2	Selenium	0.62	U		P
7440-22-4	Silver	0.10	U		P

Color Before: _____ Clarity Before: _____ Texture: _____
Color After: _____ Clarity After: _____ Artifacts: _____

Comments:
120102-1

FORM I - IN

U.S. EPA

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

1012

Lab Name: LIONVILLE_LABORATORY_____ Contract: 60052_____
Lab Code: LVLI__ Case No.: 121__ SAS No.: _____ SDG No.: V3056_
Matrix (soil/water): SOIL_ Lab Sample ID: 0802L611-003
Level (low/med): LOW__ Date Received: 02/15/08
% Solids: _84.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	3.0			P
7440-39-3	Barium	128			P
7440-43-9	Cadmium	0.38	B		P
7440-47-3	Chromium	4.4			P
7439-92-1	Lead	14.2			P
7439-97-6	Mercury	0.01	U		AV
7782-49-2	Selenium	0.63	U		P
7440-22-4	Silver	0.10	U		P

Color Before: _____ Clarity Before: _____ Texture: _____
Color After: _____ Clarity After: _____ Artifacts: _____

Comments:
120101-2

FORM I - IN

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 02/27/08 10:17

RFW Batch Number: **0802L611** Client: **NSTEC V3056** Work Order: 60052001001 Page: 1

	Cust ID:	120101-1	120101-1	120101-1	120102-1	120101-2	PBLKNE
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	08LE0097-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	3.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate: Tetrachloro-m-xylene		93 %	97 %	100 %	102 %	85 %	80 %
Decachlorobiphenyl		84 %	88 %	91 %	92 %	76 %	69 %
Aroclor-1016		16 U	87 %	89 %	46 U	16 U	13 U
Aroclor-1221		16 U	16 U	16 U	46 U	16 U	13 U
Aroclor-1232		16 U	16 U	16 U	46 U	16 U	13 U
Aroclor-1242		16 U	16 U	16 U	46 U	16 U	13 U
Aroclor-1248		16 U	16 U	16 U	46 U	16 U	13 U
Aroclor-1254		16 U	16 U	16 U	670	16 U	13 U
Aroclor-1260		16 U	100 %	101 %	290	16 U	13 U

	Cust ID:	PBLKNE BS
Sample Information	RFW#:	08LE0097-MB1
	Matrix:	SOIL
	D.F.:	1.00
	Units:	UG/KG
Surrogate: Tetrachloro-m-xylene		99 %
Decachlorobiphenyl		84 %
Aroclor-1016		84 %
Aroclor-1221		13 U
Aroclor-1232		13 U
Aroclor-1242		13 U
Aroclor-1248		13 U
Aroclor-1254		13 U
Aroclor-1260		90 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

0000000013

Lionville Laboratory, Inc.

GAS RANGE ORGANICS

Report Date: 03/10/08 08:48

RFW Batch Number: **0802L611** Client: **NSTEC V3056** Work Order: 60052001001 Page: 1

	Cust ID:	120101-1	120101-1	120101-1	120102-1	120101-2	TBLKDN
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	08LVJ225-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Fluorobenzene		75 %	86 %	84 %	89 %	74 %	94 %
Gasoline Range Organics (GRO)		110 U	63 %	58 %	99 U	110 U	90 U

	Cust ID:	TBLKDN BS
Sample Information	RFW#:	08LVJ225-MB1
	Matrix:	SOIL
	D.F.:	1.00
	Units:	UG/KG
Fluorobenzene		92 %
Gasoline Range Organics (GRO)		87 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Lionville Laboratory, Inc.

DIESEL RANGE ORGANICS BY GC

Report Date: 02/29/08 07:20

RFW Batch Number: **0802L611** Client: **NSTEC V3056** Work Order: 60052001001 Page: 1

	Cust ID:	120101-1	120101-1	120101-1	120102-1	120101-2	BLK
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	08LE0099-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
p-Terphenyl		111 %	108 %	113 %	112 %	94 %	102 %
Diesel Range Organics		21000	58 %	92 %	60000	3100 J	3330 U
Motor Oil Range Organics		54000	NS	NS	110000	15000	10000 U

	Cust ID:	BLK BS
Sample Information	RFW#:	08LE0099-MB1
	Matrix:	SOIL
	D.F.:	1.00
	Units:	ug/kg
p-Terphenyl		93 %
Diesel Range Organics		79 %
Motor Oil Range Organics		NS

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

NSTec

ANALYTICAL LABORATORY

SERVICES REQUEST AND CHAIN OF CUSTODY RECORD

Page 1 of 2

PROJECT / CLIENT INFORMATION		*REPORT & TURNAROUND INFORMATION*			*SAMPLE INFORMATION*
Project: CAU 121	BN Org#: H340	Send Report to: Glenn Richardson			Sampling Site: 12-01-01-1 / 1291-02-1
Charge Number: 5B1B 6645		Phone: 5-5361	Fax: 5-7761	M/S: NTS 306	The samples submitted contain (check):
Project Manager: Tom Thiele		Turnaround: (X) Standard – 14 days IH, 28 days Non-rad Env, 45 days Rad Env			( ) **Hazardous** - *(list)*
Phone: 5-6711	Fax: 5-7761 / M/S: NTS 306	( ) RUSH Preliminary by: ___ (IH)			( ) **Radioactive** - *(list)*
		___1 ___2 ___7 ___14 (non-Rad Env)			( ) **Unknown** contamination. If known, identify contaminants. This information will ensure compliance with applicable regulations and allow for the safe handling of the sample materials.
		___1 ___7 ___14 ___28 (Radiological Env)			

SAMPLE MANAGEMENT INFORMATION

SDG: _____ (IH) V3056 (Non-Rad Env) _____ (Rad Env)

Samples submitted are associated with a signed Project SOW. (X) YES ( ) NO

Analyses entered here agree with the SOW. (X) YES ( ) NO ( ) N/A

If not, identify the variation: _____

Subcontract Lab(s) used for this work: LIONVILLE

ID/DESCRIPTION	SAMPLING DATE	SAMPLING TIME	MATRIX	CONTAINER #	CONTAINER Est. Vol	QC MD	QC MS	QC MSD	Pres – Analysis eg. HCl - VOCs	Pay Item, Analysis, Method: 6.10 Total VOC	7.2 Total SVOC	9.22 Total RCRA metals	8.1 PCB	10.52 TPH-Gas - Diesel - Oil			
120101-1	2/13/08	1110	Soil	1	125ml		X	X		X							
120101-1		1110			250ml		X	X			X						
120101-1		1110			125ml		X	X				X					
120101-1		1110			125ml		X	X					X				
120101-1		1110			125ml		X	X						X			
120102-1		1020			125ml					X							
120102-1		1020			250ml						X						
120102-1		1020			125ml							X					
120102-1		1020			125ml								X				
120102-1		1020			125ml									X			

CUSTODY TRANSFER

Sampled/Relinquished (print)	Signature	DATE / TIME	Received by (print)	Signature	DATE / TIME
M L Floyd	/s/ M Floyd	2/14/08 0645	C.D. CASTANEDA	/s/ C Castaneda	2/14/08 @ 0645
CA CASTANEDA	/s/ C Castaneda	2/14/08 @ 1340	Fed Ex	791499781070	2/14/08 @ 1340
Fed Ex		2-15-08 @ 0935	VICTOR HERNANDEZ	/s/ V Hernandez	2/15/08 @ 0935

FRM-0732 (11/06)

NSTec

ANALYTICAL LABORATORY

SERVICES REQUEST AND CHAIN OF CUSTODY RECORD

Page 2 of 2

PROJECT / CLIENT INFORMATION

Project: CAU 121 | BN Org#: 4300

Charge Number: 5B13 6645

Project Manager: Tom Thiele

Phone: 5-6711 | Fax: 5-7761 | M/S: NTS 306

REPORT & TURNAROUND INFORMATION

Send Report to: Glenn Richardson

Phone: 5-5361 | Fax: | M/S: NTS 306

Turnaround: (X) Standard – 14 days IH, 28 days Non-rad Env, 45 days Rad Env
( ) RUSH Preliminary by: _____ (IH)
__1 __2 __7 __14 (non-Rad Env)
__1 __7 __14 __28 (Radiological Env)

SAMPLE INFORMATION

Sampling Site: 12-01-01 / 12-01-02

The samples submitted contain (check):
( ) **Hazardous** - *(list)* _____
( ) **Radioactive** - *(list)* _____
( ) **Unknown** contamination. If known, identify contaminants. This information will ensure compliance with applicable regulations and allow for the safe handling of the sample materials.

SAMPLE MANAGEMENT INFORMATION

SDG: _____ (IH) V3056 (Non-Rad Env) _____ (Rad Env)

Samples submitted are associated with a signed Project SOW. (X) YES ( ) NO

Analyses entered here agree with the SOW. (X) YES ( ) NO ( ) N/A

If not, identify the variation: _____

Subcontract Lab(s) used for this work: LIONVILLE

ID/DESCRIPTION	SAMPLING DATE	SAMPLING TIME	MATRIX	CONTAINER #	CONTAINER Est. Vol	QC MD	QC MS	QC MSD	Pres – Analysis eg. HCl - VOCs	Pay Item, Analysis, Method: 6.10 Total VOC	7.2 Total SVOC	9.22 Total RCRA metals	8.1 PCB	10.52 TPH – Gas, Diesel – Oil	1.28 Total VOC		
120101-2	2/13/08	1120	Soil	1	125 ml					X							
120101-2		1120			250 ml						X						
120101-2		1120			125 ml							X					
120101-2		1120			125 ml								X				
120101-2		1120			125 ml									X			
CAU 121-TB	2/13/08	0815	Water	1	40 ml				H_2SO_4	~~X~~					X		

CUSTODY TRANSFER

Sampled/Relinquished (print)	Signature	DATE / TIME	Received by (print)	Signature	DATE / TIME
M. E. Floyd	/s/ M Floyd	2/14/08 0645	C.D. CASTANEDA	/s/ C Castaneda	2/14/08 @ 0645
CD CASTANEDA	/s/ C Castaneda	2/14/08 @ 1320	Fed Ex	7914 9978 1070	2/14/08 @ 1320
Fed Ex		2-15-08 @ 0935	VICTOR HERNANDEZ		2-15-08 @ 0935

FRM-0732 (11/06)

Sample Delivery Group V3057

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Gross Alpha/Beta Analysis by GFPC Sample Results Summary

Client Name: National Security Technologies, LLC
Client Project Name: CAU 121
Client Project Number: V3057

Laboratory Name: Paragon Analytics
PAI Work Order: 0802116

Reported on: Wednesday, March 12, 2008 3:36:52 PM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	Units	Matrix	Prep Batch	Date Analyzed	Flags
0802116-1	120101-1	Sample	GROSS ALPHA	6.46E+00 +/- 1.90E+00	1.04E+00	pCi/g	SOIL	AB080225-10	2/28/2008	
0802116-1	120101-1	Sample	GROSS BETA	1.05E+01 +/- 2.20E+00	1.53E+00	pCi/g	SOIL	AB080225-10	2/28/2008	
0802116-2	120102-1	Sample	GROSS ALPHA	6.42E+00 +/- 1.76E+00	9.54E-01	pCi/g	SOIL	AB080225-10	2/28/2008	
0802116-2	120102-1	Sample	GROSS BETA	7.70E+00 +/- 1.59E+00	1.08E+00	pCi/g	SOIL	AB080225-10	2/28/2008	LT
0802116-3	120101-2	Sample	GROSS ALPHA	4.76E+00 +/- 1.63E+00	1.16E+00	pCi/g	SOIL	AB080225-10	2/28/2008	LT
0802116-3	120101-2	Sample	GROSS BETA	1.08E+01 +/- 2.25E+00	1.45E+00	pCi/g	SOIL	AB080225-10	2/28/2008	

Comments:

Data Package ID: *AB0802116-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

LT - Result is less than Requested MDC, greater than sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0802116
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 121 V3057

Field ID: 120101-1
Lab ID: 0802116-1

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 9
Date Collected: 13-Feb-08
Date Prepared: 25-Feb-08
Date Analyzed: 26-Feb-08

Prep Batch: GS080225-1
QCBatchID: GS080225-1-1
Run ID: GS080225-1A
Count Time: 60 minutes
Report Basis: Dry Weight

Final Aliquot: 276 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 080429d02

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
14331-83-0	Ac-228	2.07E+00 +/- 3.95E-01	4.66E-01		G
14596-10-2	Am-241	3.02E-01 +/- 6.40E-01	1.07E+00		U,G
14913-49-6	Bi-212	2.36E+00 +/- 1.18E+00	1.67E+00		G
14733-03-0	Bi-214	1.12E+00 +/- 2.42E-01	2.59E-01		G,J
14762-78-8	Ce-144	9.69E-02 +/- 3.42E-01	5.80E-01		U,G
10198-40-0	Co-60	4.72E-02 +/- 7.78E-02	1.30E-01		U,G
13967-70-9	Cs-134	4.06E-02 +/- 4.89E-02	1.07E-01		U,G
10045-97-3	Cs-137	1.27E+00 +/- 2.12E-01	1.34E-01	1.00E+00	G
14683-23-9	Eu-152	1.08E-01 +/- 3.09E-01	5.44E-01		U,G
15585-10-1	Eu-154	-1.91E-01 +/- 3.87E-01	7.27E-01		U,G
14391-16-3	Eu-155	1.51E-01 +/- 2.03E-01	3.34E-01		U,G
13966-00-2	K-40	3.19E+01 +/- 4.52E+00	1.48E+00		G
15092-94-1	Pb-212	2.44E+00 +/- 3.51E-01	1.86E-01		G
15067-28-4	Pb-214	1.26E+00 +/- 2.32E-01	2.60E-01		G,J
14834-73-2	Pm-144	-1.86E-02 +/- 6.93E-02	1.25E-01		U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0802116-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0802116
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 121 V3057

Field ID: 120101-1
Lab ID: 0802116-1

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 9
Date Collected: 13-Feb-08
Date Prepared: 25-Feb-08
Date Analyzed: 26-Feb-08

Prep Batch: GS080225-1
QCBatchID: GS080225-1-1
Run ID: GS080225-1A
Count Time: 60 minutes
Report Basis: Dry Weight

Final Aliquot: 276 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 080429d02

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
14834-74-3	Pm-146	-3.10E-02 +/- 7.16E-02	1.31E-01		U,G
13967-48-1	Ru-106	-1.48E-01 +/- 6.02E-01	1.09E+00		U,G
14234-35-6	Sb-125	9.78E-02 +/- 1.42E-01	2.66E-01		U,G
15065-10-8	Th-234	3.07E+00 +/- 1.75E+00	2.72E+00		TI,G
14913-50-9	Tl-208	7.49E-01 +/- 1.47E-01	1.37E-01		G
15117-96-1	U-235	6.51E-03 +/- 3.17E-01	5.47E-01		U,G
13982-36-0	Y-88	-5.77E-02 +/- 6.83E-02	1.34E-01		U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

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M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0802116-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0802116
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 121 V3057

Field ID: 120101-2
Lab ID: 0802116-3

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 9
Date Collected: 13-Feb-08
Date Prepared: 25-Feb-08
Date Analyzed: 26-Feb-08

Prep Batch: GS080225-1
QCBatchID: GS080225-1-1
Run ID: GS080225-1A
Count Time: 60 minutes
Report Basis: Dry Weight

Final Aliquot: 273 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 080433d10

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
14331-83-0	Ac-228	2.38E+00 +/- 4.37E-01	4.83E-01		G
14596-10-2	Am-241	8.97E-01 +/- 9.88E-01	1.60E+00		U,G
14913-49-6	Bi-212	3.39E+00 +/- 1.37E+00	1.83E+00		G
14733-03-0	Bi-214	9.22E-01 +/- 2.29E-01	2.79E-01		G,J
14762-78-8	Ce-144	1.51E-01 +/- 3.62E-01	6.10E-01		U,G
10198-40-0	Co-60	-3.12E-02 +/- 7.22E-02	1.40E-01		U,G
13967-70-9	Cs-134	6.91E-02 +/- 6.93E-02	1.11E-01		U,G
10045-97-3	Cs-137	9.51E-01 +/- 1.77E-01	1.33E-01	1.00E+00	LT,G
14683-23-9	Eu-152	4.72E-02 +/- 3.64E-01	6.57E-01		U,G
15585-10-1	Eu-154	-1.92E-02 +/- 3.74E-01	6.81E-01		U,G
14391-16-3	Eu-155	1.98E-01 +/- 2.43E-01	3.97E-01		U,G
13966-00-2	K-40	3.41E+01 +/- 4.84E+00	1.45E+00		G
15092-94-1	Pb-212	2.66E+00 +/- 3.79E-01	1.86E-01		G
15067-28-4	Pb-214	1.19E+00 +/- 2.27E-01	2.52E-01		G,J
14834-73-2	Pm-144	7.09E-03 +/- 7.21E-02	1.26E-01		U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0802116-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0802116
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 121 V3057

Field ID: 120101-2
Lab ID: 0802116-3

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 9
Date Collected: 13-Feb-08
Date Prepared: 25-Feb-08
Date Analyzed: 26-Feb-08

Prep Batch: GS080225-1
QCBatchID: GS080225-1-1
Run ID: GS080225-1A
Count Time: 60 minutes
Report Basis: Dry Weight

Final Aliquot: 273 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 080433d10

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
14834-74-3	Pm-146	2.44E-02 +/- 8.47E-02	1.45E-01		U,G
13967-48-1	Ru-106	1.38E-01 +/- 6.18E-01	1.08E+00		U,G
14234-35-6	Sb-125	5.86E-02 +/- 1.59E-01	2.93E-01		U,G
15065-10-8	Th-234	3.36E+00 +/- 1.79E+00	2.84E+00		G
14913-50-9	Tl-208	8.04E-01 +/- 1.57E-01	1.41E-01		G
15117-96-1	U-235	2.43E-01 +/- 2.88E-01	4.70E-01		U,G
13982-36-0	Y-88	7.54E-02 +/- 8.13E-02	1.31E-01		U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0802116-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0802116
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 121 V3057

Field ID: 120102-1
Lab ID: 0802116-2

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 9
Date Collected: 13-Feb-08
Date Prepared: 25-Feb-08
Date Analyzed: 26-Feb-08

Prep Batch: GS080225-1
QCBatchID: GS080225-1-1
Run ID: GS080225-1A
Count Time: 60 minutes
Report Basis: Dry Weight

Final Aliquot: 305 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 080547d08

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
14331-83-0	Ac-228	2.04E+00 +/- 3.67E-01	4.38E-01		G
14596-10-2	Am-241	7.36E-02 +/- 1.19E-01	1.97E-01		U,G
14913-49-6	Bi-212	2.37E+00 +/- 1.06E+00	1.40E+00		G
14733-03-0	Bi-214	1.17E+00 +/- 2.35E-01	2.22E-01		G,J
14762-78-8	Ce-144	-2.89E-03 +/- 2.71E-01	4.69E-01		U,G
10198-40-0	Co-60	9.49E-03 +/- 5.70E-02	1.04E-01		U,G
13967-70-9	Cs-134	3.42E-02 +/- 4.39E-02	9.11E-02		U,G
10045-97-3	Cs-137	1.96E-01 +/- 7.36E-02	8.90E-02	1.00E+00	LT,G
14683-23-9	Eu-152	2.35E-01 +/- 2.59E-01	4.09E-01		U,G
15585-10-1	Eu-154	-2.75E-01 +/- 3.68E-01	7.10E-01		U,G
14391-16-3	Eu-155	1.98E-01 +/- 1.57E-01	2.48E-01		U,G
13966-00-2	K-40	3.17E+01 +/- 4.46E+00	1.04E+00		G
15092-94-1	Pb-212	2.25E+00 +/- 3.16E-01	1.40E-01		G
15067-28-4	Pb-214	1.22E+00 +/- 2.12E-01	2.04E-01		G,J
14834-73-2	Pm-144	3.83E-02 +/- 5.76E-02	9.57E-02		U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0802116-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0802116
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 121 V3057

Field ID: 120102-1
Lab ID: 0802116-2

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 9
Date Collected: 13-Feb-08
Date Prepared: 25-Feb-08
Date Analyzed: 26-Feb-08

Prep Batch: GS080225-1
QCBatchID: GS080225-1-1
Run ID: GS080225-1A
Count Time: 60 minutes
Report Basis: Dry Weight

Final Aliquot: 305 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 080547d08

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
14834-74-3	Pm-146	6.22E-02 +/- 6.60E-02	1.06E-01		U,G
13967-48-1	Ru-106	-1.08E-01 +/- 5.26E-01	9.57E-01		U,G
14234-35-6	Sb-125	1.33E-01 +/- 1.25E-01	2.08E-01		U,G
15065-10-8	Th-234	2.27E+00 +/- 7.92E-01	1.53E+00		G
14913-50-9	Tl-208	7.22E-01 +/- 1.39E-01	1.20E-01		G
15117-96-1	U-235	1.64E-01 +/- 3.02E-01	5.03E-01		U,G
13982-36-0	Y-88	-1.22E-02 +/- 7.11E-02	1.30E-01		U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0802116-1*

NSTec

ANALYTICAL LABORATORY

SERVICES REQUEST AND CHAIN OF CUSTODY RECORD

0802116 Page 1 of 1

PROJECT / CLIENT INFORMATION

Project: CAU 121 | BN Org#: H300

Charge Number: 5B1B 6645

Project Manager: Tom Thiele

Phone: 5-6711 | Fax: 5-7761 | M/S: NTS306

REPORT & TURNAROUND INFORMATION

Send Report to: Glenn Richardson

Phone: 5-5361 | Fax: | M/S: NTS 306

Turnaround: (X) Standard – 14 days IH, 28 days Non-rad Env, 45 days Rad Env
( ) RUSH Preliminary by: _____ (IH)
___1 ___2 ___7 ___14 (non-Rad Env)
___1 ___7 ___14 ___28 (Radiological Env)

SAMPLE INFORMATION

Sampling Site: 12-01-01 / 12-01-02

The samples submitted contain (check):
( ) **Hazardous** - *(list)* _____
( ) **Radioactive** - *(list)* _____
( ) **Unknown** contamination. If known, identify contaminants. This information will ensure compliance with applicable regulations and allow for the safe handling of the sample materials.

SAMPLE MANAGEMENT INFORMATION

SDG: _____ (IH) _____ (Non-Rad Env) V3057 (Rad Env)

Samples submitted are associated with a signed Project SOW. (X) YES ( ) NO

Analyses entered here agree with the SOW. (X) YES ( ) NO ( ) N/A

If not, identify the variation: _____

Subcontract Lab(s) used for this work: PARAGON

ID/DESCRIPTION	SAMPLING DATE	SAMPLING TIME	MATRIX	CONTAINER #	CONTAINER Est. Vol	QC MD	QC MS	QC MSD	Pres – Analysis eg. HCl - VOCs	Pay Item, Analysis, Method: GPC-A-003 Gross alpha/beta	NGS-A-002 Gamma spectroscopy
120101-1 (1)	2/13/08		Soil	1	500ml					X	
120101-1											X
120102-1 (2)		1020								X	
120102-1		1020									X
120101-2 (3)										X	
120101-2											X
LAST ITEM											

CUSTODY TRANSFER

Sampled/Relinquished (print)	Signature	DATE / TIME	Received by (print)	Signature	DATE / TIME
Mike Floyd	/s/ M Floyd	2/14/08 0643	C.A. Castaneda	/s/ C Castaneda	2/14/08 @ 0643
CA CASTANEDA	/s/ C Castaneda	2/14/08@1300	Fed Ex #	7918 4995 4115	2/14/08@1300
Fed Ex	SL 2.15.08	2.15.08 @ 0940	/s/ S Lafferty	Sheri Lafferty	2.15.08 @ 0940

FRM-0732 (11/06)

Sample Delivery Group V3097

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Lionville Laboratory, Inc.
Volatiles by GC/MS, HSL List
Report Date: 06/17/08 10:30

RFW Batch Number: **0804L004** Client: **NSTEC V3097** Work Order: 60052001001 Page: 1a

	Cust ID:	122226-1		122226-2		122226-3		122226-4		122226-5		122226-6	
Sample	RFW#:	001		002		003		004		005		006	
Information	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	0.980		1.02		0.943		0.980		0.943		1.02	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
	Toluene-d8	95	%	100	%	96	%	92	%	100	%	94	%
Surrogate	Bromofluorobenzene	102	%	104	%	104	%	100	%	106	%	99	%
Recovery	1,2-Dichloroethane-d4	106	%	110	%	105	%	106	%	104	%	106	%
		fl		fl		fl		fl		fl		fl	
Chloromethane		10	U	11	U	10	U	10	U	10	U	11	U
Bromomethane		10	U	11	U	10	U	10	U	10	U	11	U
Vinyl Chloride		10	U	11	U	10	U	10	U	10	U	11	U
Chloroethane		10	U	11	U	10	U	10	U	10	U	11	U
Methylene Chloride		5	B	6	B	6	B	6	B	5	B	5	B
Acetone		10	U	11	U	10	U	10	U	10	U	11	U
Carbon Disulfide		5	U	6	U	5	U	5	U	5	U	6	U
1,1-Dichloroethene		5	U	6	U	5	U	5	U	5	U	6	U
1,1-Dichloroethane		5	U	6	U	5	U	5	U	5	U	6	U
1,2-Dichloroethene (total)		5	U	6	U	5	U	5	U	5	U	6	U
Chloroform		5	U	6	U	5	U	5	U	5	U	6	U
1,2-Dichloroethane		5	U	6	U	5	U	5	U	5	U	6	U
2-Butanone		10	U	11	U	10	U	10	U	10	U	11	U
1,1,1-Trichloroethane		5	U	6	U	5	U	5	U	5	U	6	U
Carbon Tetrachloride		5	U	6	U	5	U	5	U	5	U	6	U
Bromodichloromethane		5	U	6	U	5	U	5	U	5	U	6	U
1,2-Dichloropropane		5	U	6	U	5	U	5	U	5	U	6	U
cis-1,3-Dichloropropene		5	U	6	U	5	U	5	U	5	U	6	U
Trichloroethene		5	U	6	U	5	U	5	U	5	U	6	U
Dibromochloromethane		5	U	6	U	5	U	5	U	5	U	6	U
1,1,2-Trichloroethane		5	U	6	U	5	U	5	U	5	U	6	U
Benzene		5	U	6	U	5	U	5	U	5	U	6	U
Trans-1,3-Dichloropropene		5	U	6	U	5	U	5	U	5	U	6	U
Bromoform		5	U	6	U	5	U	5	U	5	U	6	U
4-Methyl-2-pentanone		10	U	11	U	10	U	10	U	10	U	11	U
2-Hexanone		10	U	11	U	10	U	10	U	10	U	11	U
Tetrachloroethene		5	U	6	U	5	U	5	U	5	U	6	U
1,1,2,2-Tetrachloroethane		5	U	6	U	5	U	5	U	5	U	6	U
Toluene		5	U	6	U	5	U	5	U	5	U	6	U

*= Outside of EPA CLP QC limits.

RFW Batch Number: 0804L004 Client: NSTEC V3097 Work Order: 60052001001 Page: 1b

Cust ID:	122226-1	122226-2	122226-3	122226-4	122226-5	122226-6
RFW#:	001	002	003	004	005	006
Chlorobenzene	5 U	6 U	5 U	5 U	5 U	6 U
Ethylbenzene	5 U	6 U	5 U	5 U	5 U	6 U
Styrene	5 U	6 U	5 U	5 U	5 U	6 U
Xylenes (total)	5 U	6 U	5 U	5 U	5 U	6 U
cis-1,2-dichloroethene	5 U	6 U	5 U	5 U	5 U	6 U
trans-1,2-dichloroethene	5 U	6 U	5 U	5 U	5 U	6 U
1,3,5-Trimethylbenzne	5 U	6 U	5 U	5 U	5 U	6 U
n-Butylbenzene	5 U	6 U	5 U	5 U	5 U	6 U
n-Propylbenzene	5 U	6 U	5 U	5 U	5 U	6 U

*= Outside of EPA CLP QC limits.

5a

Lionville Laboratory, Inc.
Volatiles by GC/MS, HSL List
Report Date: 06/17/08 10:30

RFW Batch Number: **0804L004** Client: **NSTEC V3097** Work Order: 60052001001 Page: 2a

	Cust ID:	122226-7	122226-8	122226-9	122226-9	122226-9	122226-TB
Sample Information	RFW#:	007	008	009	009 MS	009 MSD	010
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	WATER
	D.F.:	1.02	1.02	0.962	0.926	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/L
Surrogate Recovery	Toluene-d8	98 %	100 %	102 %	100 %	98 %	102 %
	Bromofluorobenzene	104 %	106 %	112 %	103 %	104 %	104 %
	1,2-Dichloroethane-d4	109 %	106 %	110 %	112 %	108 %	85 %
Chloromethane		11 U	11 U	11 U	96 %	91 %	10 U
Bromomethane		11 U	11 U	11 U	77 %	75 %	10 U
Vinyl Chloride		11 U	11 U	11 U	92 %	86 %	10 U
Chloroethane		11 U	11 U	11 U	106 %	103 %	10 U
Methylene Chloride		7 B	7 B	6 B	73 %	71 %	1 JB
Acetone		11 U	11 U	11 U	245 %	230 %	10 U
Carbon Disulfide		6 U	6 U	6 U	104 %	97 %	5 U
1,1-Dichloroethene		6 U	6 U	6 U	113 %	110 %	5 U
1,1-Dichloroethane		6 U	6 U	6 U	109 %	105 %	5 U
1,2-Dichloroethene (total)		6 U	6 U	6 U	97 %	95 %	5 U
Chloroform		6 U	6 U	6 U	105 %	102 %	5 U
1,2-Dichloroetnane		6 U	6 U	6 U	115 %	115 %	5 U
2-Butanone		11 U	11 U	11 U	223 * %	210 * %	10 U
1,1,1-Trichloroethane		6 U	6 U	6 U	106 %	102 %	5 U
Carbon Tetrachloride		6 U	6 U	6 U	105 %	100 %	5 U
Bromodichloromethane		6 U	6 U	6 U	105 %	101 %	5 U
1,2-Dichloropropane		6 U	6 U	6 U	107 %	102 %	5 U
cis-1,3-Dichloropropene		6 U	6 U	6 U	101 %	96 %	5 U
Trichloroethene		6 U	6 U	6 U	132 %	130 %	5 U
Dibromochloromethane		6 U	6 U	6 U	107 %	102 %	5 U
1,1,2-Trichloroethane		6 U	6 U	6 U	100 %	96 %	5 U
Benzene		6 U	6 U	6 U	102 %	98 %	5 U
Trans-1,3-Dichloropropene		6 U	6 U	6 U	93 %	88 %	5 U
Bromoform		6 U	6 U	6 U	105 %	100 %	5 U
4-Methyl-2-pentanone		11 U	11 U	11 U	129 %	116 %	10 U
2-Hexanone		11 U	11 U	11 U	183 %	164 %	10 U
Tetrachloroethene		6 U	6 U	6 U	95 %	89 %	5 U
1,1,2,2-Tetrachloroethane		6 U	6 U	6 U	61 * %	49 * %	5 U
Toluene		6 U	6 U	6 U	99 %	95 %	5 U

*= Outside of EPA CLP QC limits.

RFW Batch Number: **0804L004** Client: **NSTEC V3097** Work Order: 60052001001 Page: 2b

	Cust ID:	122226-7	122226-8	122226-9	122226-9	122226-9	122226-TB
	RFW#:	007	008	009	009 MS	009 MSD	010
Chlorobenzene		6 U	6 U	6 U	98 %	93 %	5 U
Ethylbenzene		6 U	6 U	6 U	98 %	92 %	5 U
Styrene		6 U	6 U	6 U	96 %	91 %	5 U
Xylenes (total)		6 U	6 U	6 U	95 %	90 %	5 U
cis-1,2-dichloroethene		6 U	6 U	6 U	98 %	94 %	5 U
trans-1,2-dichloroethene		6 U	6 U	6 U	97 %	95 %	5 U
1,3,5-Trimethylbenzne		6 U	6 U	6 U	5 U	6 U	5 U
n-Butylbenzene		6 U	6 U	6 U	5 U	6 U	5 U
n-Propylbenzene		6 U	6 U	6 U	5 U	6 U	5 U

*= Outside of EPA CLP QC limits.

021

Lionville Laboratory, Inc.
Semivolatiles by GC/MS, HSL List

RFW Batch Number: 0804L004 Client: NSTEC V3097 Work Order: 60052001001 Page: 1a

Report Date: 05/12/08 11:45

	Cust ID:	122226-1	122226-1	122226-1	122226-2	122226-3	122226-4
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Nitrobenzene-d5	44 %	56 %	51 %	41 %	52 %	53 %
	2-Fluorobiphenyl	62 %	73 %	72 %	48 %	61 %	72 %
	Terphenyl-d14	79 %	95 %	90 %	57 %	76 %	82 %
	Phenol-d5	57 %	70 %	66 %	51 %	58 %	78 %
	2-Fluorophenol	55 %	65 %	65 %	49 %	59 %	74 %
	2,4,6-Tribromophenol	67 %	40 %	60 %	43 %	40 %	67 %
Phenol		340 U	70 %	66 %	350 U	350 U	350 U
bis(2-Chloroethyl)ether		340 U	54 %	58 %	350 U	350 U	350 U
2-Chlorophenol		340 U	68 %	69 %	350 U	350 U	350 U
1,3-Dichlorobenzene		340 U	59 %	60 %	350 U	350 U	350 U
1,4-Dichlorobenzene		340 U	59 %	59 %	350 U	350 U	350 U
1,2-Dichlorobenzene		340 U	61 %	65 %	350 U	350 U	350 U
2-Methylphenol		340 U	73 %	80 %	350 U	350 U	350 U
2,2'-oxybis(1-Chloropropane)		340 U	54 %	56 %	350 U	350 U	350 U
3/4 Methylphenol		340 U	79 %	81 %	350 U	350 U	350 U
N-Nitroso-di-n-propylamine		340 U	65 %	65 %	350 U	350 U	350 U
Hexachloroethane		340 U	52 %	54 %	350 U	350 U	350 U
Nitrobenzene		340 U	56 %	52 %	350 U	350 U	350 U
Isophorone		340 U	67 %	61 %	350 U	350 U	350 U
2-Nitrophenol		340 U	74 %	67 %	350 U	350 U	350 U
2,4-Dimethylphenol		340 U	78 %	70 %	350 U	350 U	350 U
bis(2-Chloroethoxy)methane		340 U	63 %	59 %	350 U	350 U	350 U
2,4-Dichlorophenol		340 U	82 %	76 %	350 U	350 U	350 U
1,2,4-Trichlorobenzene		340 U	70 %	65 %	350 U	350 U	350 U
Naphthalene		340 U	65 %	61 %	350 U	350 U	350 U
4-Chloroaniline		340 U	40 %	46 %	350 U	350 U	350 U
Hexachlorobutadiene		340 U	72 %	68 %	350 U	350 U	350 U
4-Chloro-3-methylphenol		340 U	76 %	73 %	350 U	350 U	350 U
2-Methylnaphthalene		340 U	76 %	68 %	350 U	350 U	350 U
Hexachlorocyclopentadiene		340 U	47 %	39 %	350 U	350 U	350 U
2,4,6-Trichlorophenol		340 U	44 %	62 %	350 U	350 U	350 U
2,4,5-Trichlorophenol		860 U	67 %	81 %	870 U	860 U	860 U

*= Outside of EPA CLP QC limits.

000000019

	Cust ID:	122226-1	122226-1	122226-1	122226-2	122226-3	122226-4
	RFW#:	001	001 MS	001 MSD	002	003	004
2-Chloronaphthalene		340 U	75 %	74 %	350 U	350 U	350 U
2-Nitroaniline		860 U	71 %	76 %	870 U	860 U	860 U
Dimethylphthalate		340 U	85 %	85 %	350 U	350 U	350 U
Acenaphthylene		340 U	78 %	76 %	350 U	350 U	350 U
2,6-Dinitrotoluene		340 U	80 %	89 %	350 U	350 U	350 U
3-Nitroaniline		860 U	59 %	69 %	870 U	860 U	860 U
Acenaphthene		340 U	74 %	75 %	350 U	350 U	350 U
2,4-Dinitrophenol		860 U	34 %	35 %	870 U	860 U	860 U
4-Nitrophenol		860 U	91 %	78 %	870 U	860 U	860 U
Dibenzofuran		340 U	84 %	85 %	350 U	350 U	350 U
2,4-Dinitrotoluene		340 U	87 %	94 %	350 U	350 U	350 U
Diethylphthalate		340 U	85 %	87 %	350 U	350 U	350 U
4-Chlorophenyl-phenylether		340 U	82 %	81 %	350 U	350 U	350 U
Fluorene		340 U	82 %	84 %	350 U	350 U	350 U
4-Nitroaniline		860 U	77 %	79 %	870 U	860 U	860 U
4,6-Dinitro-2-methylphenol		860 U	51 %	45 %	870 U	860 U	860 U
N-Nitrosodiphenylamine (1)		340 U	58 %	61 %	350 U	350 U	350 U
4-Bromophenyl-phenylether		340 U	69 %	69 %	350 U	350 U	350 U
Hexachlorobenzene		340 U	88 %	85 %	350 U	350 U	350 U
Pentachlorophenol		860 U	42 %	43 %	870 U	860 U	860 U
Phenanthrene		340 U	77 %	76 %	350 U	350 U	350 U
Anthracene		340 U	78 %	82 %	350 U	350 U	350 U
Carbazole		340 U	77 %	82 %	350 U	350 U	350 U
Di-n-butylphthalate		340 U	72 %	77 %	350 U	350 U	350 U
Fluoranthene		340 U	84 %	90 %	350 U	350 U	350 U
Pyrene		340 U	93 %	86 %	350 U	350 U	350 U
Butylbenzylphthalate		340 U	79 %	80 %	350 U	350 U	350 U
3,3'-Dichlorobenzidine		340 U	52 %	51 %	350 U	350 U	350 U
Benzo(a)anthracene		340 U	78 %	80 %	350 U	350 U	350 U
Chrysene		340 U	82 %	83 %	350 U	350 U	350 U
bis(2-Ethylhexyl)phthalate		120 JB	64 %	72 %	46 JB	22 JB	46 JB
Di-n-octyl phthalate		340 U	75 %	78 %	350 U	350 U	100 J
Benzo(b)fluoranthene		340 U	80 %	89 %	350 U	350 U	350 U
Benzo(k)fluoranthene		340 U	80 %	80 %	350 U	350 U	350 U
Benzo(a)pyrene		340 U	76 %	80 %	350 U	350 U	350 U
Indeno(1,2,3-cd)pyrene		340 U	75 %	76 %	350 U	350 U	350 U
Dibenz(a,h)anthracene		340 U	74 %	73 %	350 U	350 U	350 U
Benzo(g,h,i)perylene		340 U	75 %	76 %	350 U	350 U	350 U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

	Cust ID:	122226-5	122226-6	122226-7	122226-8	122226-9	SBLKUJ
Sample Information	RFW#:	005	006	007	008	009	08LE0208-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Nitrobenzene-d5	40 %	60 %	45 %	57 %	46 %	58 %
	2-Fluorobiphenyl	49 %	62 %	57 %	67 %	50 %	61 %
	Terphenyl-d14	67 %	82 %	78 %	80 %	74 %	99 %
	Phenol-d5	53 %	72 %	66 %	65 %	58 %	65 %
	2-Fluorophenol	53 %	68 %	61 %	70 %	56 %	64 %
	2,4,6-Tribromophenol	20 %	49 %	42 %	43 %	41 %	18 * %
		fl	fl	fl	fl	fl	fl
Phenol		350 U	350 U	370 U	380 U	370 U	330 U
bis(2-Chloroethyl)ether		350 U	350 U	370 U	380 U	370 U	330 U
2-Chlorophenol		350 U	350 U	370 U	380 U	370 U	330 U
1,3-Dichlorobenzene		350 U	350 U	370 U	380 U	370 U	330 U
1,4-Dichlorobenzene		350 U	350 U	370 U	380 U	370 U	330 U
1,2-Dichlorobenzene		350 U	350 U	370 U	380 U	370 U	330 U
2-Methylphenol		350 U	350 U	370 U	380 U	370 U	330 U
2,2'-oxybis(1-Chloropropane)		350 U	350 U	370 U	380 U	370 U	330 U
3/4 Methylphenol		350 U	350 U	370 U	380 U	370 U	330 U
N-Nitroso-di-n-propylamine		350 U	350 U	370 U	380 U	370 U	330 U
Hexachloroethane		350 U	350 U	370 U	380 U	370 U	330 U
Nitrobenzene		350 U	350 U	370 U	380 U	370 U	330 U
Isophorone		350 U	350 U	370 U	380 U	370 U	330 U
2-Nitrophenol		350 U	350 U	370 U	380 U	370 U	330 U
2,4-Dimethylphenol		350 U	350 U	370 U	380 U	370 U	330 U
bis(2-Chloroethoxy)methane		350 U	350 U	370 U	380 U	370 U	330 U
2,4-Dichlorophenol		350 U	350 U	370 U	380 U	370 U	330 U
1,2,4-Trichlorobenzene		350 U	350 U	370 U	380 U	370 U	330 U
Naphthalene		350 U	350 U	370 U	380 U	370 U	330 U
4-Chloroaniline		350 U	350 U	370 U	380 U	370 U	330 U
Hexachlorobutadiene		350 U	350 U	370 U	380 U	370 U	330 U
4-Chloro-3-methylphenol		350 U	350 U	370 U	380 U	370 U	330 U
2-Methylnaphthalene		350 U	350 U	370 U	380 U	370 U	330 U
Hexachlorocyclopentadiene		350 U	350 U	370 U	380 U	370 U	330 U
2,4,6-Trichlorophenol		350 U	350 U	370 U	380 U	370 U	330 U
2,4,5-Trichlorophenol		870 U	870 U	920 U	940 U	930 U	830 U

*= Outside of EPA CLP QC limits.

	Cust ID:	122226-5		122226-6		122226-7		122226-8		122226-9		SBLKUJ	
	RFW#:	005		006		007		008		009		08LE0208-MB1	
2-Chloronaphthalene		350	U	350	U	370	U	380	U	370	U	330	U
2-Nitroaniline		870	U	870	U	920	U	940	U	930	U	830	U
Dimethylphthalate		350	U	350	U	370	U	380	U	370	U	330	U
Acenaphthylene		350	U	350	U	370	U	380	U	370	U	330	U
2,6-Dinitrotoluene		350	U	350	U	370	U	380	U	370	U	330	U
3-Nitroaniline		870	U	870	U	920	U	940	U	930	U	830	U
Acenaphthene		350	U	350	U	370	U	380	U	370	U	330	U
2,4-Dinitrophenol		870	U	870	U	920	U	940	U	930	U	830	U
4-Nitrophenol		870	U	870	U	920	U	940	U	930	U	830	U
Dibenzofuran		350	U	350	U	370	U	380	U	370	U	330	U
2,4-Dinitrotoluene		350	U	350	U	370	U	380	U	370	U	330	U
Diethylphthalate		350	U	350	U	370	U	380	U	370	U	330	U
4-Chlorophenyl-phenylether		350	U	350	U	370	U	380	U	370	U	330	U
Fluorene		350	U	350	U	370	U	380	U	370	U	330	U
4-Nitroaniline		870	U	870	U	920	U	940	U	930	U	830	U
4,6-Dinitro-2-methylphenol		870	U	870	U	920	U	940	U	930	U	830	U
N-Nitrosodiphenylamine (1)		350	U	350	U	370	U	380	U	370	U	330	U
4-Bromophenyl-phenylether		350	U	350	U	370	U	380	U	370	U	330	U
Hexachlorobenzene		350	U	350	U	370	U	380	U	370	U	330	U
Pentachlorophenol		870	U	870	U	920	U	940	U	930	U	830	U
Phenanthrene		350	U	350	U	370	U	380	U	370	U	330	U
Anthracene		350	U	350	U	370	U	380	U	370	U	330	U
Carbazole		350	U	350	U	370	U	380	U	370	U	330	U
Di-n-butylphthalate		350	U	350	U	370	U	380	U	370	U	330	U
Fluoranthene		350	U	350	U	370	U	380	U	370	U	330	U
Pyrene		350	U	350	U	370	U	380	U	370	U	330	U
Butylbenzylphthalate		350	U	350	U	370	U	380	U	370	U	330	U
3,3'-Dichlorobenzidine		350	U	350	U	370	U	380	U	370	U	330	U
Benzo(a)anthracene		350	U	350	U	370	U	380	U	370	U	330	U
Chrysene		350	U	350	U	370	U	380	U	370	U	330	U
bis(2-Ethylhexyl)phthalate		52	JB	25	JB	42	JB	43	JB	20	JB	23	J
Di-n-octyl phthalate		350	U	350	U	370	U	380	U	370	U	330	U
Benzo(b)fluoranthene		350	U	350	U	18	J	380	U	370	U	330	U
Benzo(k)fluoranthene		350	U	350	U	370	U	380	U	370	U	330	U
Benzo(a)pyrene		350	U	350	U	370	U	380	U	370	U	330	U
Indeno(1,2,3-cd)pyrene		350	U	350	U	370	U	380	U	370	U	330	U
Dibenz(a,h)anthracene		350	U	350	U	370	U	380	U	370	U	330	U
Benzo(g,h,i)perylene		350	U	350	U	370	U	380	U	370	U	330	U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

U.S. EPA

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

22261

Lab Name: LIONVILLE_LABORATORY_____ Contract: 60052_____
Lab Code: LVLI__ Case No.: NSTEC SAS No.: _____ SDG No.: V3097_
Matrix (soil/water): SOIL_ Lab Sample ID: 0804L004-001
Level (low/med): LOW__ Date Received: 04/25/08
% Solids: _96.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	2.1			P
7440-39-3	Barium	163			P
7440-43-9	Cadmium	0.25	B		P
7440-47-3	Chromium	4.2		*	P
7439-92-1	Lead	14.1		*	P
7439-97-6	Mercury	0.01	U		AV
7782-49-2	Selenium	0.57	U		P
7440-22-4	Silver	0.10	U		P

Color Before: _____ Clarity Before: _____ Texture: _____
Color After: _____ Clarity After: _____ Artifacts: _____

Comments:
122226-1

FORM I - IN

U.S. EPA

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

22262

Lab Name: LIONVILLE_LABORATORY_____ Contract: 60052_____
Lab Code: LVLI__ Case No.: NSTEC SAS No.: _____ SDG No.: V3097_
Matrix (soil/water): SOIL_ Lab Sample ID: 0804L004-002
Level (low/med): LOW__ Date Received: 04/25/08
% Solids: _95.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	1.2	B		P
7440-39-3	Barium	132			P
7440-43-9	Cadmium	0.06	B		P
7440-47-3	Chromium	3.2		*	P
7439-92-1	Lead	11.9		*	P
7439-97-6	Mercury	0.01	U		AV
7782-49-2	Selenium	0.53	U		P
7440-22-4	Silver	0.09	U		P

Color Before: _____ Clarity Before: _____ Texture: _____
Color After: _____ Clarity After: _____ Artifacts: _____

Comments:
122226-2

FORM I - IN

U.S. EPA

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

22263

Lab Name: LIONVILLE_LABORATORY_____ Contract: 60052_____
Lab Code: LVLI__ Case No.: NSTEC SAS No.: _____ SDG No.: V3097_
Matrix (soil/water): SOIL_ Lab Sample ID: 0804L004-003
Level (low/med): LOW__ Date Received: 04/25/08
% Solids: _96.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	1.1	B		P
7440-39-3	Barium	126			P
7440-43-9	Cadmium	0.09	B		P
7440-47-3	Chromium	2.7		*	P
7439-92-1	Lead	11.2		*	P
7439-97-6	Mercury	0.01	U		AV
7782-49-2	Selenium	0.56	U		P
7440-22-4	Silver	0.09	U		P

Color Before: _____ Clarity Before: _____ Texture: _____
Color After: _____ Clarity After: _____ Artifacts: _____

Comments:
122226-3

FORM I - IN

U.S. EPA

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

22264

Lab Name: LIONVILLE_LABORATORY_____ Contract: 60052_____
Lab Code: LVLI__ Case No.: NSTEC SAS No.: _____ SDG No.: V3097_
Matrix (soil/water): SOIL_ Lab Sample ID: 0804L004-004
Level (low/med): LOW__ Date Received: 04/25/08
% Solids: _96.5 -

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	3.2			P
7440-39-3	Barium	237			P
7440-43-9	Cadmium	0.25	B		P
7440-47-3	Chromium	9.2		*	P
7439-92-1	Lead	18.3		*	P
7439-97-6	Mercury	0.01	U		AV
7782-49-2	Selenium	0.53	U		P
7440-22-4	Silver	0.09	U		P

Color Before: _____ Clarity Before: _____ Texture: _____
Color After: _____ Clarity After: _____ Artifacts: _____

Comments:
122226-4

FORM I - IN

U.S. EPA

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

22265

Lab Name: LIONVILLE_LABORATORY_____ Contract: 60052_____
Lab Code: LVLI__ Case No.: NSTEC SAS No.: _____ SDG No.: V3097_
Matrix (soil/water): SOIL_ Lab Sample ID: 0804L004-005
Level (low/med): LOW__ Date Received: 04/25/08
% Solids: _95.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	1.1	B		P
7440-39-3	Barium	128			P
7440-43-9	Cadmium	0.14	B		P
7440-47-3	Chromium	2.9		*	P
7439-92-1	Lead	11.6		*	P
7439-97-6	Mercury	0.01	U		AV
7782-49-2	Selenium	0.56	U		P
7440-22-4	Silver	0.09	U		P

Color Before: _____ Clarity Before: _____ Texture: _____
Color After: _____ Clarity After: _____ Artifacts: _____

Comments:
122226-5

FORM I - IN

U.S. EPA

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

22266

Lab Name: LIONVILLE_LABORATORY_____ Contract: 60052_____
Lab Code: LVLI__ Case No.: NSTEC SAS No.: _____ SDG No.: V3097_
Matrix (soil/water): SOIL_ Lab Sample ID: 0804L004-006
Level (low/med): LOW__ Date Received: 04/25/08
% Solids: _95.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	0.94	B		P
7440-39-3	Barium	125			P
7440-43-9	Cadmium	0.11	B		P
7440-47-3	Chromium	2.7		*	P
7439-92-1	Lead	16.6		*	P
7439-97-6	Mercury	0.01	U		AV
7782-49-2	Selenium	0.51	U		P
7440-22-4	Silver	0.08	U		P

Color Before: _____ Clarity Before: _____ Texture: _____
Color After: _____ Clarity After: _____ Artifacts: _____

Comments:
122226-6

FORM I - IN

U.S. EPA

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

22267

Lab Name: LIONVILLE_LABORATORY_____ Contract: 60052_____
Lab Code: LVLI__ Case No.: NSTEC SAS No.: _____ SDG No.: V3097_
Matrix (soil/water): SOIL_ Lab Sample ID: 0804L004-007
Level (low/med): LOW__ Date Received: 04/25/08
% Solids: _90.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	2.3			P
7440-39-3	Barium	271			P
7440-43-9	Cadmium	0.17	B		P
7440-47-3	Chromium	3.5		*	P
7439-92-1	Lead	18.0		*	P
7439-97-6	Mercury	0.01	U		AV
7782-49-2	Selenium	0.58	U		P
7440-22-4	Silver	0.10	U		P

Color Before: _____ Clarity Before: _____ Texture: _____
Color After: _____ Clarity After: _____ Artifacts: _____

Comments:
122226-7

FORM I - IN

U.S. EPA

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

22268

Lab Name: LIONVILLE_LABORATORY Contract: 60052

Lab Code: LVLI Case No.: NSTEC SAS No.: SDG No.: V3097

Matrix (soil/water): SOIL Lab Sample ID: 0804L004-008

Level (low/med): LOW Date Received: 04/25/08

% Solids: 88.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	1.9	B		P
7440-39-3	Barium	212			P
7440-43-9	Cadmium	0.16	B		P
7440-47-3	Chromium	3.1		*	P
7439-92-1	Lead	19.2		*	P
7439-97-6	Mercury	0.01	U		AV
7782-49-2	Selenium	0.59	U		P
7440-22-4	Silver	0.10	U		P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

122226-8

FORM I - IN

U.S. EPA

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

22269

Lab Name: LIONVILLE_LABORATORY_____ Contract: 60052_____
Lab Code: LVLI__ Case No.: NSTEC SAS No.: _____ SDG No.: V3097_
Matrix (soil/water): SOIL_ Lab Sample ID: 0804L004-009
Level (low/med): LOW__ Date Received: 04/25/08
% Solids: _89.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	1.7	B		P
7440-39-3	Barium	153			P
7440-43-9	Cadmium	0.10	B		P
7440-47-3	Chromium	2.7		*	P
7439-92-1	Lead	12.4		*	P
7439-97-6	Mercury	0.01	U		AV
7782-49-2	Selenium	0.56	U		P
7440-22-4	Silver	0.09	U		P

Color Before: _____ Clarity Before: _____ Texture: _____
Color After: _____ Clarity After: _____ Artifacts: _____

Comments:
122226-9

FORM I - IN

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 05/06/08 11:27

RFW Batch Number: **0804L004** Client: **NSTEC V3097** Work Order: 60052001001 Page: 1

	Cust ID:	122226-1	122226-1	122226-1	122226-2	122226-3	122226-4
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	101 %	94 %	96 %	103 %	91 %	89 %
	Decachlorobiphenyl	97 %	90 %	92 %	101 %	88 %	80 %
		fl	fl	fl	fl	fl	fl
Aroclor-1016		14 U	83 %	85 %	14 U	14 U	14 U
Aroclor-1221		14 U	14 U	14 U	14 U	14 U	14 U
Aroclor-1232		14 U	14 U	14 U	14 U	14 U	14 U
Aroclor-1242		14 U	14 U	14 U	14 U	14 U	14 U
Aroclor-1248		14 U	14 U	14 U	14 U	14 U	14 U
Aroclor-1254		14 U	14 U	14 U	14 U	14 U	14 U
Aroclor-1260		4.8 J	78 %	80 %	14 U	6.5 J	5.7 J

	Cust ID:	122226-5	122226-6	122226-7	122226-8	122226-9	PBLKPU
Sample Information	RFW#:	005	006	007	008	009	08LE0207-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	92 %	97 %	95 %	97 %	97 %	98 %
	Decachlorobiphenyl	88 %	94 %	94 %	96 %	98 %	96 %
		fl	fl	fl	fl	fl	fl
Aroclor-1016		14 U	14 U	15 U	15 U	15 U	13 U
Aroclor-1221		14 U	14 U	15 U	15 U	15 U	13 U
Aroclor-1232		14 U	14 U	15 U	15 U	15 U	13 U
Aroclor-1242		14 U	14 U	15 U	15 U	15 U	13 U
Aroclor-1248		14 U	14 U	15 U	15 U	15 U	13 U
Aroclor-1254		14 U	14 U	15 U	15 U	15 U	13 U
Aroclor-1260		14 U	14 U	15 U	4.1 J	15 U	13 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Lionville Laboratory, Inc.

GAS RANGE ORGANICS

Report Date: 05/07/08 10:31

RFW Batch Number: **0804L004** Client: **NSTEC V3097** Work Order: 60052001001 Page: 1

00000015

	Cust ID:	122226-1	122226-1	122226-1	122226-2	122226-3	122226-4
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Fluorobenzene		79 %	83 %	88 %	79 %	75 %	61 %
Gasoline Range Organics (GRO)		90 U	67 %	71 %	90 U	90 U	90 U

	Cust ID:	122226-5	122226-6	122226-7	122226-8	122226-9	122226-10
Sample Information	RFW#:	005	006	007	008	009	011
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Fluorobenzene		80 %	85 %	61 %	74 %	73 %	89 %
Gasoline Range Organics (GRO)		90 U	90 U	99 U	99 U	99 U	99 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Lionville Laboratory, Inc.

GAS RANGE ORGANICS

Report Date: 05/07/08 10:31

RFW Batch Number: **0804L004** Client: **NSTEC V3097** Work Order: 60052001001 Page: 2

	Cust ID:	122226-11	122226-12	122226-13	122226-14	TBLKEB	TBLKEB BS
Sample Information	RFW#:	012	013	014	015	08LVJ429-MB1	08LVJ429-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Fluorobenzene		72 %	78 %	74 %	68 %	95 %	107 %
Gasoline Range Organics (GRO)		99 U	99 U	99 U	99 U	90 U	96 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

000000016

Lionville Laboratory, Inc.

DIESEL RANGE ORGANICS BY GC

Report Date: 05/07/08 12:04

RFW Batch Number: **0804L004** Client: **NSTEC V3097** Work Order: 60052001001 Page: 1

	Cust ID:	122226-1	122226-1	122226-1	122226-2	122226-3	122226-4
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	2.00	10.0
	Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
	p-Terphenyl	103 %	98 %	115 %	93 %	96 %	95 %
Diesel Range Organics		33000	76 %	118 %	3500 U	6910 U	940000
Motor Oil Range Organics		95000	NS	NS	22000	440000	2600000

	Cust ID:	122226-5	122226-6	122226-7	122226-8	122226-9	122226-10
Sample Information	RFW#:	005	006	007	008	009	011
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
	p-Terphenyl	98 %	104 %	87 %	103 %	105 %	104 %
Diesel Range Organics		3490 U	3490 U	3680 U	3760 U	3710 U	3510 U
Motor Oil Range Organics		37000	9200	44000	41000	48000	31000

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

000000015

Lionville Laboratory, Inc.

DIESEL RANGE ORGANICS BY GC

Report Date: 05/07/08 12:04

RFW Batch Number: **0804L004** Client: **NSTEC V3097** Work Order: 60052001001 Page: 2

	Cust ID:	122226-11	122226-12	122226-13	122226-14	BLK	BLK BS
Sample Information	RFW#:	012	013	014	015	08LE0209-MB1	08LE0209-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	2.00	2.00	2.00	1.00	1.00
	Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
p-Terphenyl		101 %	90 %	95 %	98 %	90 %	63 %
		fl	fl	fl	fl	fl	fl
Diesel Range Organics		3550 U	7080 U	7170 U	7500 U	3330 U	86 %
Motor Oil Range Organics		13000	210000	210000	250000	10000 U	NS

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

NSTec

ANALYTICAL LABORATORY

SERVICES REQUEST AND CHAIN OF CUSTODY RECORD

Page 1 of 4

PROJECT / CLIENT INFORMATION

Project: CAU 121 | BN Org#: 4300

Charge Number: 5B1B6675

Project Manager: Tom Thiele

Phone: 295-6711 | Fax: 295-7761 | M/S: NTS 306

REPORT & TURNAROUND INFORMATION

Send Report to: Glenn Richardson

Phone: 295-5361 | Fax: 295-7761 | M/S: NTS 306

Turnaround: ( ) Standard – 14 days IH, 28 days Non-rad Env, 45 days Rad Env
( ) RUSH Preliminary by: _____ (IH)
___1 ___2 ___7 X 14 (non-Rad Env)
___1 ___7 ___14 ___28 (Radiological Env)

SAMPLE INFORMATION

Sampling Site: 12-22-26

The samples submitted contain (check):
( ) **Hazardous** - *(list)* _____
( ) **Radioactive** - *(list)* _____
( ) **Unknown** contamination. If known, identify contaminants. This information will ensure compliance with applicable regulations and allow for the safe handling of the sample materials.

SAMPLE MANAGEMENT INFORMATION

SDG: _____ (IH) V3097 (Non-Rad Env) _____ (Rad Env)

Samples submitted are associated with a signed Project SOW. (X) YES ( ) NO

Analyses entered here agree with the SOW. (X) YES ( ) NO ( ) N/A

If not, identify the variation: _____

Subcontract Lab(s) used for this work: LIONVILLE 99291-6

ID/DESCRIPTION	SAMPLING DATE	SAMPLING TIME	MATRIX	CONTAINER #	CONTAINER Est. Vol	QC MD	QC MS	QC MSD	Pres – Analysis eg. HCl - VOCs	Pay Item, Analysis, Method: 6.10 Total VOCs	7.2 Total SVOCs	9.22 Total Reg Metals	8.1 PCB	10.52 TPH Full Scan			
122226-1	4/23/08	1300	Soil	1	125		X	Y		X							
122226-1		1300	"	1	500		X	Y			X	X	X				
122226-1		1300	Soil	1	250		X	Y						X			
122226-2		1310		1	125					X							
122226-2		1310		1	500						X	X	X				
122226-2		1310		1	250									X			
122226-3		1315		1	125					X							
122226-3		1315		1	500						X	X	X				
122226-3	V	1315	V	1	250									X			

CUSTODY TRANSFER

Sampled/Relinquished (print)	Signature	DATE / TIME	Received by (print)	Signature	DATE / TIME
Mike Flovd	/s/ M Flovd	4/24/08 0851	CD Castaneda	/s/ C Castaneda	4/24/08 @ 0851
C.D. CASTANEDA	/s/ C Castaneda	4/24/08 @ 1300	FedEx # 790000142670,	791052322758, 790991989418	4/24/08 @ 1300
FedEx			VICTOR HERNANDEZ	/s/ V Hernandez	4/25/08 @ 0955

FRM-0732 (11/06)

NSTec

ANALYTICAL LABORATORY
SERVICES REQUEST AND CHAIN OF CUSTODY RECORD

PROJECT / CLIENT INFORMATION		*REPORT & TURNAROUND INFORMATION*			*SAMPLE INFORMATION*
Project: CAU 121	BN Org#: H300	Send Report to: Glenn Richardson			Sampling Site: CAU 121
Charge Number: 5B1B 0665		Phone: 295-5361	Fax: 295-7761	M/S: NTS 306	The samples submitted contain (check):
Project Manager: Tom Thiele		Turnaround: ( ) Standard – 14 days IH, 28 days Non-rad Env, 45 days Rad Env			( ) **Hazardous** - *(list)*
Phone: 295-6711	Fax: 295	( ) RUSH Preliminary by: _____ (IH)			( ) **Radioactive** - *(list)*
M/S: NTS-306		___1 ___2 ___7 X 14 (non-Rad Env)			( ) **Unknown** contamination. If known, identify contaminants. This information will ensure compliance with applicable regulations and allow for the safe handling of the sample materials.
		___1 ___7 ___14 ___28 (Radiological Env)			

SAMPLE MANAGEMENT INFORMATION

SDG: _____ (IH) V3097 (Non-Rad Env) _____ (Rad Env)

Samples submitted are associated with a signed Project SOW. (X) YES ( ) NO

Analyses entered here agree with the SOW. (X) YES ( ) NO ( ) N/A

If not, identify the variation: _____

Subcontract Lab(s) used for this work: LIONVILLE 99291-6

ID/DESCRIPTION	SAMPLING DATE	SAMPLING TIME	MATRIX	CONTAINER #	CONTAINER Est. Vol	QC MD	QC MS	QC MSD	Pres – Analysis eg. HCl - VOCs	Pay Item, Analysis, Method: 6.10 TOTAL VOC	7.2 TOTAL SVOC	9.22 TOTAL RCRA Metals	8.1 PCB	10.52 TPH Full Scan			
122226-4	4/23/08	1330	Soil	1	125					X							
122226-4		1330		1	500						X	X	X				
122226-4		1330		1	250									X			
122226-5		1340		1	125					X							
122226-5		1340		1	500						X	X	X				
122226-5		1340		1	250									X			
122226-6		1345		1	125					X							
122226-6		1345		1	500						X	X	X				
122226-6	↓	1345	↓	1	250									X			

CUSTODY TRANSFER

Sampled/Relinquished (print)	Signature	DATE / TIME	Received by (print)	Signature	DATE / TIME
Mike Floyd	/s/ M Floyd	4/24/08 0851	C.D. CASTANEDA	/s/ C Castaneda	4/24/08 @ 0851
C.D. CASTANEDA	/s/ C Castaneda	4/24/08 @ 1300	FED EX #790000142670,	791052322758, 790991989418	4/24/08 @ 1300
FED EX		4-25-08 0955	VICTOR HERNANDEZ	/s/ V Hernandez	4-25-08 @ 0955

NSTec

ANALYTICAL LABORATORY
SERVICES REQUEST AND CHAIN OF CUSTODY RECORD

Page 3 of 4

PROJECT / CLIENT INFORMATION

Project: CAU 121 | BN Org#: 41300
Charge Number: 5B1B 6645
Project Manager: Tom Thiele
Phone: 295-6711 | Fax: 295-7761 | M/S: NTS 306

REPORT & TURNAROUND INFORMATION

Send Report to: Glenn Richardson
Phone: 295-5361 | Fax: 295-7761 | M/S: NTS 306
Turnaround: ( ) Standard – 14 days IH, 28 days Non-rad Env, 45 days Rad Env
( ) RUSH Preliminary by: _____ (IH)
__1 __2 __7 X 14 (non-Rad Env)
__1 __7 __14 __28 (Radiological Env)

SAMPLE INFORMATION

Sampling Site: 122 26
The samples submitted contain (check);
( ) **Hazardous** - *(list)* _____
( ) **Radioactive** - *(list)* _____
( ) **Unknown** contamination. If known, identify contaminants. This information will ensure compliance with applicable regulations and allow for the safe handling of the sample materials.

SAMPLE MANAGEMENT INFORMATION

SDG: _____ (IH) V3097 (Non-Rad Env) _____ (Rad Env)
Samples submitted are associated with a signed Project SOW. (X) YES ( ) NO
Analyses entered here agree with the SOW. (X) YES ( ) NO ( ) N/A
If not, identify the variation: _____
Subcontract Lab(s) used for this work: LIONVILLE 99291-6

Pay Item, Analysis, Method	6.10	7.2	9.22	8.1	10.52	1.28		
	TOTAL VOC	TOTAL SVOC	TOTAL RCRA Metals	PCB	TPH FULL SCAN	TOTAL VOC		

ID/DESCRIPTION	SAMPLING DATE	SAMPLING TIME	MATRIX	CONTAINER #	CONTAINER Est. Vol	QC MD	QC MS	QC MSD	Pres – Analysis eg. HCl - VOCs								
122226-7	4/23/08	1350	SOIL	1	125					X							
122226-7		1350		1	500						X	X	X				
122226-7		1350		1	250									X			
122226-8		1400		1	125					X							
122226-8		1400		1	500						X	X	X				
122226-8		1400		1	250									X			
122226-9		1405		1	125					X							
122226-9		1405		1	500						X	X	X				
122226-9		1405		1	250									X			
122226-TB		1100	WATER	1	40ml					X[VE]						X	

CUSTODY TRANSFER

Sampled/Relinquished (print)	Signature	DATE / TIME	Received by (print)	Signature	DATE / TIME
Mike Floyd	/s/ M Floyd	4/24/08 0851	C.D. CASTANEDA	/s/ C Castaneda	4/24/08 @ 0851
C.D. CASTANEDA	/s/ C Cantaneda	4/24/08 @ 1300	FED EX # 790000142670,	791052322758, 790991989418	4/24/08 @ 1300
FED EX		4-25-08 0955	VICTOR HERNANDEZ	/s/ V Hernandez	4-25-08 @ 0955

FRM-0732 (11/06)

NSTec

ANALYTICAL LABORATORY

SERVICES REQUEST AND CHAIN OF CUSTODY RECORD

Page 4 of 4

PROJECT / CLIENT INFORMATION

Project: CAU 124 | BN Org#: 4300

Charge Number: 5BIB 66Y5

Project Manager: Tom Thiele

Phone: 295-6711 | Fax: 295-7761 | M/S: NTS 306

REPORT & TURNAROUND INFORMATION

Send Report to: Glenn Richardson

Phone: 295-5361 | Fax: 295-7761 | M/S: NTS 306

Turnaround: ( ) Standard – 14 days IH, 28 days Non-rad Env, 45 days Rad Env
( ) RUSH Preliminary by: _____ (IH)
__1 __2 __7 X 14 (non-Rad Env)
__1 __7 __14 __28 (Radiological Env)

SAMPLE INFORMATION

Sampling Site: 12-22-26

The samples submitted contain (check);
( ) **Hazardous** - *(list)* _____
( ) **Radioactive** - *(list)* _____
( ) **Unknown** contamination. If known, identify contaminants. This information will ensure compliance with applicable regulations and allow for the safe handling of the sample materials.

SAMPLE MANAGEMENT INFORMATION

SDG: _____ (IH) V3097 (Non-Rad Env) _____ (Rad Env)

Samples submitted are associated with a signed Project SOW. (X) YES ( ) NO

Analyses entered here agree with the SOW. (X) YES ( ) NO ( ) N/A

If not, identify the variation: _____

Subcontract Lab(s) used for this work: LIONVILLE 99291-6

ID/DESCRIPTION	SAMPLING DATE	SAMPLING TIME	MATRIX	CONTAINER #	CONTAINER Est. Vol	QC MD	QC MS	QC MSD	Pres – Analysis eg. HCl - VOCs	Pay Item, Analysis, Method: 10.52 TPH Full Scan
122226-10	4/23/08	1420	Soil	1	250					X
122226-11	"	1425	"	1	250					X
122226-12	"	1430	"	1	250					X
122226-13	"	1435	"	1	250					X
122226-14	"	1440	"	1	250					X
LAST ITEM										

CUSTODY TRANSFER

Sampled/Relinquished (print)	Signature	DATE / TIME	Received by (print)	Signature	DATE / TIME
MIKE FLOYD	/s/ M Floyd	4/24/08 0851	C.D. CASTANEDA	/s/ C Castaneda	4/24/08@0851
C.D. CASTANEDA	/s/ C Castaneda	4/24/08 @1340	FED EX# 790000142670,	791052322758, 790991989418	4/24/08@1340
FED EX		4-25-08 @ 0955	VICTOR HERNANDEZ	/s/ V Hernandez	4/25/08 @ 0955

FRM-0732 (11/06)

Sample Delivery Group V3098

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Gross Alpha/Beta Analysis by GFPC Sample Results Summary

Client Name: National Security Technologies, LLC
Client Project Name: CAU 121
Client Project Number: V3098

Laboratory Name: Paragon Analytics
PAI Work Order: 0804241

Reported on: Tuesday, May 13, 2008 9:47:08 AM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	Units	Matrix	Prep Batch	Date Analyzed	Flags
0804241-1	122226-1	Sample	GROSS ALPHA	3.58E+00 +/- 1.74E+00	1.59E+00	pCi/g	SOIL	AB080428-8	5/6/2008	LT
0804241-1	122226-1	Sample	GROSS BETA	7.56E+00 +/- 2.26E+00	2.87E+00	pCi/g	SOIL	AB080428-8	5/6/2008	LT
0804241-2	122226-2	Sample	GROSS ALPHA	6.76E+00 +/- 2.36E+00	1.47E+00	pCi/g	SOIL	AB080428-8	5/6/2008	
0804241-2	122226-2	Sample	GROSS BETA	6.58E+00 +/- 2.02E+00	2.49E+00	pCi/g	SOIL	AB080428-8	5/6/2008	LT
0804241-3	122226-3	Sample	GROSS ALPHA	3.19E+00 +/- 1.55E+00	1.31E+00	pCi/g	SOIL	AB080428-8	5/6/2008	LT
0804241-3	122226-3	Sample	GROSS BETA	7.33E+00 +/- 2.12E+00	2.50E+00	pCi/g	SOIL	AB080428-8	5/6/2008	LT
0804241-4	122226-4	Sample	GROSS ALPHA	4.80E+00 +/- 1.99E+00	1.35E+00	pCi/g	SOIL	AB080428-8	5/8/2008	LT
0804241-4	122226-4	Sample	GROSS BETA	8.41E+00 +/- 2.30E+00	2.50E+00	pCi/g	SOIL	AB080428-8	5/8/2008	LT
0804241-5	122226-5	Sample	GROSS ALPHA	8.27E+00 +/- 2.63E+00	1.30E+00	pCi/g	SOIL	AB080428-8	5/7/2008	

Comments:

Data Package ID: *AB0804241-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

LT - Result is less than Requested MDC, greater than sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Gross Alpha/Beta Analysis by GFPC Sample Results Summary

Client Name: National Security Technologies, LLC
Client Project Name: CAU 121
Client Project Number: V3098

Laboratory Name: Paragon Analytics
PAI Work Order: 0804241

Reported on: Tuesday, May 13, 2008 9:47:08 AM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	Units	Matrix	Prep Batch	Date Analyzed	Flags
0804241-5	122226-5	Sample	GROSS BETA	9.06E+00 +/- 2.40E+00	2.49E+00	pCi/g	SOIL	AB080428-8	5/7/2008	LT
0804241-6	122226-6	Sample	GROSS ALPHA	4.04E+00 +/- 1.73E+00	1.32E+00	pCi/g	SOIL	AB080428-8	5/7/2008	LT
0804241-6	122226-6	Sample	GROSS BETA	6.83E+00 +/- 2.04E+00	2.45E+00	pCi/g	SOIL	AB080428-8	5/7/2008	LT
0804241-7	122226-7	Sample	GROSS ALPHA	1.66E+01 +/- 4.28E+00	1.43E+00	pCi/g	SOIL	AB080428-8	5/7/2008	
0804241-7	122226-7	Sample	GROSS BETA	1.59E+01 +/- 3.54E+00	2.88E+00	pCi/g	SOIL	AB080428-8	5/7/2008	
0804241-8	122226-8	Sample	GROSS ALPHA	7.81E+00 +/- 2.53E+00	1.45E+00	pCi/g	SOIL	AB080428-8	5/7/2008	
0804241-8	122226-8	Sample	GROSS BETA	1.43E+01 +/- 3.24E+00	2.62E+00	pCi/g	SOIL	AB080428-8	5/7/2008	
0804241-9	122226-9	Sample	GROSS ALPHA	5.55E+00 +/- 2.09E+00	1.47E+00	pCi/g	SOIL	AB080428-8	5/7/2008	
0804241-9	122226-9	Sample	GROSS BETA	1.39E+01 +/- 3.11E+00	2.45E+00	pCi/g	SOIL	AB080428-8	5/7/2008	

Comments:

Data Package ID: *AB0804241-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

LT - Result is less than Requested MDC, greater than sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Gross Alpha/Beta Analysis by GFPC Sample Results Summary

Client Name: National Security Technologies, LLC
Client Project Name: CAU 121
Client Project Number: V3098

Laboratory Name: Paragon Analytics
PAI Work Order: 0804241

Reported on: Tuesday, May 13, 2008 9:47:08 AM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	Units	Matrix	Prep Batch	Date Analyzed	Flags
0804241-10	122226-15	Sample	GROSS ALPHA	1.71E+00 +/- 1.30E+00	1.64E+00	pCi/g	SOIL	AB080428-8	5/7/2008	LT
0804241-10	122226-15	Sample	GROSS BETA	2.09E+00 +/- 1.33E+00	2.50E+00	pCi/g	SOIL	AB080428-8	5/7/2008	U

Comments:

Data Package ID: *AB0804241-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

LT - Result is less than Requested MDC, greater than sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Gamma Spectroscopy Results

PAI 713 Rev 9

Duplicate Sample Results (DER)

Lab Name: Paragon Analytics
Work Order Number: 0804241
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 121 V3098

Field ID: 122226-1
Lab ID: 0804241-1DUP

Library: LNG_GAM-A-001

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 9
Date Collected: 23-Apr-08
Date Prepared: 28-Apr-08
Date Analyzed: 29-Apr-08

Prep Batch: GS080428-1
QCBatchID: GS080428-1-1
Run ID: GS080428-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 422 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 080221d03

CASNO	Analyte	Sample Result +/- 2s TPU	Duplicate Result +/- 2s TPU	DER	Control Limit	Lab Qualifiers
14331-83-0	Ac-228	8.44E-01 +/- 2.77E-01	8.71E-01 +/- 3.00E-01	0.13	3	G,TI
14596-10-2	Am-241	2.69E-01 +/- 7.86E-01	6.47E-02 +/- 7.72E-01	0.37	3	U,G
14733-03-0	Bi-214	9.97E-01 +/- 2.54E-01	9.92E-01 +/- 2.37E-01	0.03	3	G,J
14762-78-8	Ce-144	-3.53E-01 +/- 4.05E-01	-8.29E-02 +/- 3.82E-01	0.97	3	U,G
10198-40-0	Co-60	-6.66E-02 +/- 8.06E-02	-8.55E-02 +/- 7.55E-02	0.34	3	U,G
13967-70-9	Cs-134	1.00E-02 +/- 6.35E-02	-1.31E-01 +/- 6.39E-02	3.14	3	U,D,G
10045-97-3	Cs-137	1.10E-01 +/- 8.14E-02	9.46E-02 +/- 7.92E-02	0.26	3	U,G
14683-23-9	Eu-152	1.58E-01 +/- 2.75E-01	2.89E-01 +/- 3.02E-01	0.64	3	U,G
15585-10-1	Eu-154	1.31E-01 +/- 3.37E-01	-3.84E-02 +/- 3.66E-01	0.68	3	U,G
14391-16-3	Eu-155	2.58E-01 +/- 2.64E-01	1.94E-01 +/- 2.45E-01	0.35	3	U,G
13966-00-2	K-40	2.53E+01 +/- 4.01E+00	2.65E+01 +/- 4.12E+00	0.42	3	G
15092-94-1	Pb-212	9.65E-01 +/- 2.10E-01	1.02E+00 +/- 2.11E-01	0.39	3	G
15067-28-4	Pb-214	1.07E+00 +/- 2.19E-01	9.22E-01 +/- 2.09E-01	0.99	3	G,J
14834-73-2	Pm-144	-2.15E-02 +/- 7.00E-02	4.89E-03 +/- 6.84E-02	0.54	3	U,G
14834-74-3	Pm-146	8.48E-02 +/- 8.09E-02	2.80E-02 +/- 6.52E-02	1.09	3	U,G
13967-48-1	Ru-106	-2.46E-02 +/- 5.22E-01	-3.33E-01 +/- 4.95E-01	0.86	3	U,G
14234-35-6	Sb-125	-6.09E-02 +/- 1.71E-01	2.36E-02 +/- 1.68E-01	0.71	3	U,G

Comments:

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.

D - DER is greater than Control Limit of 3
LT - Result is less than Request MDC, greater than sample specific MDC
M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits

SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 halflives.
G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)
DER - Duplicate Error Ratio (see PAI SOP 715)
BDL - Below Detection Limit
NR - Not Reported

Data Package ID: *GSS0804241-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Duplicate Sample Results (DER)

Lab Name: Paragon Analytics
Work Order Number: 0804241
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 121 V3098

Field ID: 122226-1
Lab ID: 0804241-1DUP
Library: LNG_GAM-A-001

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 9
Date Collected: 23-Apr-08
Date Prepared: 28-Apr-08
Date Analyzed: 29-Apr-08

Prep Batch: GS080428-1
QCBatchID: GS080428-1-1
Run ID: GS080428-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 422 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 080221d03

CASNO	Analyte	Sample Result +/- 2s TPU	Duplicate Result +/- 2s TPU	DER	Control Limit	Lab Qualifiers
15065-10-8	Th-234	1.51E+00 +/- 1.07E+00	5.68E-01 +/- 1.26E+00	1.14	3	U,G
14913-50-9	Tl-208	3.24E-01 +/- 1.08E-01	3.08E-01 +/- 1.03E-01	0.21	3	G
15117-96-1	U-235	1.82E-01 +/- 4.32E-01	1.13E-01 +/- 3.98E-01	0.23	3	U,G
13982-36-0	Y-88	-5.97E-03 +/- 8.17E-02	-1.66E-02 +/- 7.65E-02	0.19	3	U,G

Comments:

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.

D - DER is greater than Control Limit of 3
LT - Result is less than Request MDC, greater than sample specific MDC
M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits

SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 halflives.
G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)
DER - Duplicate Error Ratio (see PAI SOP 715)
BDL - Below Detection Limit
NR - Not Reported

Data Package ID: *GSS0804241-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0804241
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 121 V3098

Field ID: 122226-1
Lab ID: 0804241-1

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 9
Date Collected: 23-Apr-08
Date Prepared: 28-Apr-08
Date Analyzed: 29-Apr-08

Prep Batch: GS080428-1
QCBatchID: GS080428-1-1
Run ID: GS080428-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 413 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 080220d03

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
14331-83-0	Ac-228	8.44E-01 +/- 2.77E-01	5.07E-01		G
14596-10-2	Am-241	2.69E-01 +/- 7.86E-01	1.33E+00		U,G
14913-49-6	Bi-212	1.91E+00 +/- 1.08E+00	1.45E+00		G,TI
14733-03-0	Bi-214	9.97E-01 +/- 2.54E-01	2.78E-01		G,J
14762-78-8	Ce-144	-3.53E-01 +/- 4.05E-01	7.40E-01		U,G
10198-40-0	Co-60	-6.66E-02 +/- 8.06E-02	1.68E-01		U,G
13967-70-9	Cs-134	1.00E-02 +/- 6.35E-02	1.13E-01		U,G
10045-97-3	Cs-137	1.10E-01 +/- 8.14E-02	1.23E-01	1.00E+00	U,G
14683-23-9	Eu-152	1.58E-01 +/- 2.75E-01	4.73E-01		U,G
15585-10-1	Eu-154	1.31E-01 +/- 3.37E-01	5.97E-01		U,G
14391-16-3	Eu-155	2.58E-01 +/- 2.64E-01	4.26E-01		U,G
13966-00-2	K-40	2.53E+01 +/- 4.01E+00	1.42E+00		G
15092-94-1	Pb-212	9.65E-01 +/- 2.10E-01	2.05E-01		G
15067-28-4	Pb-214	1.07E+00 +/- 2.19E-01	2.31E-01		G,J
14834-73-2	Pm-144	-2.15E-02 +/- 7.00E-02	1.31E-01		U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0804241-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0804241
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 121 V3098

Field ID: 122226-1
Lab ID: 0804241-1

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 9
Date Collected: 23-Apr-08
Date Prepared: 28-Apr-08
Date Analyzed: 29-Apr-08

Prep Batch: GS080428-1
QCBatchID: GS080428-1-1
Run ID: GS080428-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 413 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 080220d03

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
14834-74-3	Pm-146	8.48E-02 +/- 8.09E-02	1.27E-01		U,G
13967-48-1	Ru-106	-2.46E-02 +/- 5.22E-01	9.76E-01		U,G
14234-35-6	Sb-125	-6.09E-02 +/- 1.71E-01	3.20E-01		U,G
15065-10-8	Th-234	1.51E+00 +/- 1.07E+00	1.65E+00		U,G
14913-50-9	Tl-208	3.24E-01 +/- 1.08E-01	1.30E-01		G
15117-96-1	U-235	1.82E-01 +/- 4.32E-01	7.28E-01		U,G
13982-36-0	Y-88	-5.97E-03 +/- 8.17E-02	1.52E-01		U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0804241-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0804241
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 121 V3098

Field ID: 122226-2
Lab ID: 0804241-2

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 9
Date Collected: 23-Apr-08
Date Prepared: 28-Apr-08
Date Analyzed: 29-Apr-08

Prep Batch: GS080428-1
QCBatchID: GS080428-1-1
Run ID: GS080428-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 388 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 080222d03

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
14331-83-0	Ac-228	9.18E-01 +/- 3.55E-01	6.61E-01		G,TI
14596-10-2	Am-241	-8.44E-02 +/- 7.52E-01	1.32E+00		U,G
14913-49-6	Bi-212	2.68E+00 +/- 1.23E+00	1.50E+00		G,TI
14733-03-0	Bi-214	1.08E+00 +/- 2.65E-01	2.32E-01		G,J
14762-78-8	Ce-144	3.75E-02 +/- 3.82E-01	6.64E-01		U,G
10198-40-0	Co-60	-4.61E-02 +/- 7.77E-02	1.61E-01		U,G
13967-70-9	Cs-134	4.10E-02 +/- 6.29E-02	1.05E-01		U,G
10045-97-3	Cs-137	-5.72E-02 +/- 7.16E-02	1.44E-01	1.00E+00	U,G
14683-23-9	Eu-152	2.28E-01 +/- 3.78E-01	6.41E-01		U,G
15585-10-1	Eu-154	2.14E-01 +/- 4.02E-01	6.90E-01		U,G
14391-16-3	Eu-155	1.38E-01 +/- 2.61E-01	4.36E-01		U,G
13966-00-2	K-40	2.68E+01 +/- 4.26E+00	1.50E+00		G
15092-94-1	Pb-212	8.97E-01 +/- 2.01E-01	1.93E-01		G
15067-28-4	Pb-214	9.95E-01 +/- 2.16E-01	2.46E-01		G,J
14834-73-2	Pm-144	-5.10E-02 +/- 6.83E-02	1.36E-01		U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0804241-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0804241
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 121 V3098

Field ID: 122226-2
Lab ID: 0804241-2

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 9
Date Collected: 23-Apr-08
Date Prepared: 28-Apr-08
Date Analyzed: 29-Apr-08

Prep Batch: GS080428-1
QCBatchID: GS080428-1-1
Run ID: GS080428-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 388 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 080222d03

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
14834-74-3	Pm-146	6.35E-02 +/- 8.38E-02	1.38E-01		U,G
13967-48-1	Ru-106	1.35E-01 +/- 5.45E-01	9.77E-01		U,G
14234-35-6	Sb-125	-1.23E-01 +/- 1.84E-01	3.54E-01		U,G
15065-10-8	Th-234	3.27E-01 +/- 1.52E+00	2.59E+00		U,G
14913-50-9	Tl-208	2.94E-01 +/- 1.08E-01	1.28E-01		G
15117-96-1	U-235	1.10E-01 +/- 4.13E-01	7.06E-01		U,G
13982-36-0	Y-88	-1.06E-02 +/- 7.99E-02	1.51E-01		U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0804241-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0804241
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 121 V3098

Field ID: 122226-3
Lab ID: 0804241-3

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 9
Date Collected: 23-Apr-08
Date Prepared: 28-Apr-08
Date Analyzed: 29-Apr-08

Prep Batch: GS080428-1
QCBatchID: GS080428-1-1
Run ID: GS080428-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 407 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 080223d03

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
14331-83-0	Ac-228	8.73E-01 +/- 2.82E-01	5.02E-01		G
14596-10-2	Am-241	-5.64E-01 +/- 8.02E-01	1.45E+00		U,G
14733-03-0	Bi-214	8.12E-01 +/- 2.39E-01	2.56E-01		G,J
14762-78-8	Ce-144	-2.27E-01 +/- 4.15E-01	7.46E-01		U,G
10198-40-0	Co-60	-6.64E-02 +/- 7.62E-02	1.63E-01		U,G
13967-70-9	Cs-134	4.07E-03 +/- 5.89E-02	1.07E-01		U,G
10045-97-3	Cs-137	-2.98E-02 +/- 7.82E-02	1.48E-01	1.00E+00	U,G
14683-23-9	Eu-152	2.59E-01 +/- 3.37E-01	5.50E-01		U,G
15585-10-1	Eu-154	2.65E-02 +/- 4.00E-01	7.37E-01		U,G
14391-16-3	Eu-155	1.41E-01 +/- 2.40E-01	4.00E-01		U,G
13966-00-2	K-40	2.41E+01 +/- 3.88E+00	1.34E+00		G
15092-94-1	Pb-212	8.72E-01 +/- 2.07E-01	2.21E-01		G
15067-28-4	Pb-214	1.01E+00 +/- 2.14E-01	2.40E-01		G,J
14834-73-2	Pm-144	-4.42E-02 +/- 7.05E-02	1.37E-01		U,G
14834-74-3	Pm-146	5.32E-02 +/- 8.47E-02	1.42E-01		U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0804241-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0804241
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 121 V3098

Field ID: 122226-3
Lab ID: 0804241-3

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 9
Date Collected: 23-Apr-08
Date Prepared: 28-Apr-08
Date Analyzed: 29-Apr-08

Prep Batch: GS080428-1
QCBatchID: GS080428-1-1
Run ID: GS080428-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 407 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 080223d03

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13967-48-1	Ru-106	3.33E-02 +/- 5.81E-01	1.06E+00		U,G
14234-35-6	Sb-125	1.36E-01 +/- 1.90E-01	3.15E-01		U,G
15065-10-8	Th-234	1.14E+00 +/- 1.54E+00	2.54E+00		U,G
14913-50-9	Tl-208	2.92E-01 +/- 9.39E-02	9.24E-02		G
15117-96-1	U-235	3.04E-01 +/- 4.13E-01	6.79E-01		U,G
13982-36-0	Y-88	-4.30E-02 +/- 8.36E-02	1.63E-01		U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0804241-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0804241
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 121 V3098

Field ID: 122226-4
Lab ID: 0804241-4

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 9
Date Collected: 23-Apr-08
Date Prepared: 28-Apr-08
Date Analyzed: 29-Apr-08

Prep Batch: GS080428-1
QCBatchID: GS080428-1-1
Run ID: GS080428-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 392 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 080772d06

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
14331-83-0	Ac-228	1.01E+00 +/- 3.21E-01	5.92E-01		G
14596-10-2	Am-241	3.74E-01 +/- 1.23E+00	2.11E+00		U,G
14733-03-0	Bi-214	8.49E-01 +/- 2.30E-01	2.45E-01		G,J
14762-78-8	Ce-144	2.17E-01 +/- 4.19E-01	7.04E-01		U,G
10198-40-0	Co-60	2.38E-02 +/- 7.62E-02	1.38E-01		U,G
13967-70-9	Cs-134	-1.84E-02 +/- 6.58E-02	1.24E-01		U,G
10045-97-3	Cs-137	4.85E-01 +/- 1.35E-01	1.27E-01	1.00E+00	LT,G
14683-23-9	Eu-152	-1.18E-01 +/- 3.44E-01	7.14E-01		U,G
15585-10-1	Eu-154	-5.11E-01 +/- 4.67E-01	9.76E-01		U,G
14391-16-3	Eu-155	8.96E-02 +/- 2.90E-01	4.96E-01		U,G
13966-00-2	K-40	2.50E+01 +/- 4.13E+00	1.71E+00		G
15092-94-1	Pb-212	1.19E+00 +/- 2.45E-01	2.28E-01		G
15067-28-4	Pb-214	7.40E-01 +/- 1.84E-01	2.26E-01		G,J
14834-73-2	Pm-144	-4.93E-02 +/- 6.95E-02	1.38E-01		U,G
14834-74-3	Pm-146	1.54E-02 +/- 7.36E-02	1.31E-01		U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0804241-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0804241
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 121 V3098

Field ID: 122226-4
Lab ID: 0804241-4

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 9
Date Collected: 23-Apr-08
Date Prepared: 28-Apr-08
Date Analyzed: 29-Apr-08

Prep Batch: GS080428-1
QCBatchID: GS080428-1-1
Run ID: GS080428-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 392 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 080772d06

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13967-48-1	Ru-106	-2.77E-01 +/- 7.67E-01	1.43E+00		U,G
14234-35-6	Sb-125	-2.14E-02 +/- 1.68E-01	3.10E-01		U,G
15065-10-8	Th-234	-7.42E-01 +/- 1.76E+00	3.12E+00		U,G
14913-50-9	Tl-208	3.40E-01 +/- 1.16E-01	1.33E-01		G
15117-96-1	U-235	0E+00 +/- 4.05E-01	7.11E-01		U,G
13982-36-0	Y-88	-4.51E-02 +/- 8.47E-02	1.67E-01		U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0804241-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0804241
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 121 V3098

Field ID: 122226-5
Lab ID: 0804241-5

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 9
Date Collected: 23-Apr-08
Date Prepared: 28-Apr-08
Date Analyzed: 29-Apr-08

Prep Batch: GS080428-1
QCBatchID: GS080428-1-1
Run ID: GS080428-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 378 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 080892d08

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
14331-83-0	Ac-228	9.93E-01 +/- 2.87E-01	3.78E-01		G
14596-10-2	Am-241	1.16E-02 +/- 1.21E-01	2.11E-01		U,G
14913-49-6	Bi-212	1.81E+00 +/- 9.62E-01	1.19E+00		G
14733-03-0	Bi-214	9.60E-01 +/- 2.43E-01	2.07E-01		G,J
14762-78-8	Ce-144	2.98E-02 +/- 3.16E-01	5.53E-01		U,G
10198-40-0	Co-60	3.06E-02 +/- 7.81E-02	1.39E-01		U,G
13967-70-9	Cs-134	0E+00 +/- 5.86E-02	1.08E-01		U,G
10045-97-3	Cs-137	2.12E-01 +/- 1.01E-01	1.32E-01	1.00E+00	LT,G
14683-23-9	Eu-152	7.59E-02 +/- 3.04E-01	5.70E-01		U,G
15585-10-1	Eu-154	3.41E-02 +/- 3.27E-01	6.19E-01		U,G
14391-16-3	Eu-155	1.36E-01 +/- 1.50E-01	2.43E-01		U,G
13966-00-2	K-40	2.78E+01 +/- 4.41E+00	1.50E+00		G
15092-94-1	Pb-212	8.93E-01 +/- 1.82E-01	1.51E-01		G
15067-28-4	Pb-214	1.13E+00 +/- 2.19E-01	2.34E-01		G,J
14834-73-2	Pm-144	3.76E-02 +/- 6.10E-02	1.03E-01		U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0804241-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0804241
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 121 V3098

Field ID: 122226-5
Lab ID: 0804241-5

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 9
Date Collected: 23-Apr-08
Date Prepared: 28-Apr-08
Date Analyzed: 29-Apr-08

Prep Batch: GS080428-1
QCBatchID: GS080428-1-1
Run ID: GS080428-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 378 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 080892d08

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
14834-74-3	Pm-146	3.93E-02 +/- 6.41E-02	1.08E-01		U,G
13967-48-1	Ru-106	1.30E-01 +/- 5.54E-01	9.95E-01		U,G
14234-35-6	Sb-125	1.54E-01 +/- 1.44E-01	2.24E-01		U,G
15065-10-8	Th-234	1.36E+00 +/- 7.71E-01	1.45E+00		U,G
14913-50-9	Tl-208	3.08E-01 +/- 1.10E-01	1.28E-01		G
15117-96-1	U-235	6.13E-02 +/- 3.27E-01	5.67E-01		U,G
13982-36-0	Y-88	-5.01E-02 +/- 7.32E-02	1.50E-01		U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0804241-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0804241
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 121 V3098

Field ID: 122226-6
Lab ID: 0804241-6

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 9
Date Collected: 23-Apr-08
Date Prepared: 28-Apr-08
Date Analyzed: 29-Apr-08

Prep Batch: GS080428-1
QCBatchID: GS080428-1-1
Run ID: GS080428-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 385 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 080568d09

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
14331-83-0	Ac-228	1.10E+00 +/- 3.74E-01	5.93E-01		G,TI
14596-10-2	Am-241	1.31E-01 +/- 1.24E-01	1.97E-01		U,G
14733-03-0	Bi-214	1.07E+00 +/- 2.95E-01	2.84E-01		G,J
14762-78-8	Ce-144	-3.31E-01 +/- 3.08E-01	5.94E-01		U,G
10198-40-0	Co-60	-1.04E-02 +/- 8.06E-02	1.65E-01		U,G
13967-70-9	Cs-134	6.84E-02 +/- 7.85E-02	1.26E-01		U,G
10045-97-3	Cs-137	1.49E-01 +/- 9.98E-02	1.43E-01	1.00E+00	LT,G
14683-23-9	Eu-152	1.56E-01 +/- 4.03E-01	7.33E-01		U,G
15585-10-1	Eu-154	-1.34E-01 +/- 5.45E-01	1.05E+00		U,G
14391-16-3	Eu-155	-1.33E-02 +/- 1.58E-01	2.82E-01		U,G
13966-00-2	K-40	3.17E+01 +/- 5.25E+00	1.86E+00		G
15092-94-1	Pb-212	1.20E+00 +/- 2.36E-01	1.81E-01		G
15067-28-4	Pb-214	9.32E-01 +/- 2.06E-01	1.99E-01		G,J
14834-73-2	Pm-144	3.70E-03 +/- 8.04E-02	1.47E-01		U,G
14834-74-3	Pm-146	1.68E-02 +/- 7.62E-02	1.37E-01		U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0804241-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0804241
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 121 V3098

Field ID: 122226-6
Lab ID: 0804241-6

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 9
Date Collected: 23-Apr-08
Date Prepared: 28-Apr-08
Date Analyzed: 29-Apr-08

Prep Batch: GS080428-1
QCBatchID: GS080428-1-1
Run ID: GS080428-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 385 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 080568d09

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13967-48-1	Ru-106	-3.78E-01 +/- 6.76E-01	1.35E+00		U,G
14234-35-6	Sb-125	-7.25E-02 +/- 1.79E-01	3.44E-01		U,G
15065-10-8	Th-234	1.61E+00 +/- 7.34E-01	1.34E+00		G
14913-50-9	Tl-208	3.16E-01 +/- 1.14E-01	1.24E-01		G
15117-96-1	U-235	3.10E-01 +/- 3.29E-01	5.29E-01		U,G
13982-36-0	Y-88	4.86E-02 +/- 7.96E-02	1.35E-01		U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0804241-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0804241
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 121 V3098

Field ID: 122226-7
Lab ID: 0804241-7

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 9
Date Collected: 23-Apr-08
Date Prepared: 28-Apr-08
Date Analyzed: 29-Apr-08

Prep Batch: GS080428-1
QCBatchID: GS080428-1-1
Run ID: GS080428-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 284 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 080734d10

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
14331-83-0	Ac-228	2.30E+00 +/- 6.04E-01	6.64E-01		G,TI
14596-10-2	Am-241	2.20E+00 +/- 1.38E+00	2.07E+00		G
14733-03-0	Bi-214	7.87E-01 +/- 3.00E-01	3.80E-01		G,J
14762-78-8	Ce-144	7.14E-02 +/- 5.90E-01	1.02E+00		U,G
10198-40-0	Co-60	-2.98E-02 +/- 9.77E-02	1.97E-01		U,G
13967-70-9	Cs-134	-2.28E-02 +/- 1.07E-01	1.95E-01		U,G
10045-97-3	Cs-137	1.05E+01 +/- 1.34E+00	2.32E-01	1.00E+00	G
14683-23-9	Eu-152	3.95E-01 +/- 4.78E-01	7.67E-01		U,G
15585-10-1	Eu-154	-3.68E-03 +/- 5.61E-01	1.04E+00		U,G
14391-16-3	Eu-155	1.69E-01 +/- 3.81E-01	6.44E-01		U,G
13966-00-2	K-40	3.37E+01 +/- 5.44E+00	1.90E+00		G
15092-94-1	Pb-212	2.44E+00 +/- 4.19E-01	3.09E-01		G
15067-28-4	Pb-214	9.90E-01 +/- 3.04E-01	5.09E-01		G,J
14834-73-2	Pm-144	-3.24E-02 +/- 7.81E-02	1.53E-01		U,G
14834-74-3	Pm-146	1.20E-01 +/- 1.86E-01	3.09E-01		U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0804241-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0804241
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 121 V3098

Field ID: 122226-7
Lab ID: 0804241-7

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 9
Date Collected: 23-Apr-08
Date Prepared: 28-Apr-08
Date Analyzed: 29-Apr-08

Prep Batch: GS080428-1
QCBatchID: GS080428-1-1
Run ID: GS080428-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 284 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 080734d10

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13967-48-1	Ru-106	-3.04E-01 +/- 8.70E-01	1.65E+00		U,G
14234-35-6	Sb-125	-2.68E-01 +/- 3.25E-01	6.07E-01		U,G
15065-10-8	Th-234	3.90E+00 +/- 2.48E+00	3.83E+00		G,TI
14913-50-9	TI-208	7.35E-01 +/- 1.94E-01	2.16E-01		G
15117-96-1	U-235	-6.70E-02 +/- 6.23E-01	1.09E+00		U,G
13982-36-0	Y-88	6.04E-03 +/- 1.08E-01	1.97E-01		U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0804241-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0804241
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 121 V3098

Field ID: 122226-8
Lab ID: 0804241-8

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 9
Date Collected: 23-Apr-08
Date Prepared: 28-Apr-08
Date Analyzed: 29-Apr-08

Prep Batch: GS080428-1
QCBatchID: GS080428-1-1
Run ID: GS080428-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 290 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 080777d02

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
14331-83-0	Ac-228	1.65E+00 +/- 4.38E-01	7.34E-01		G
14596-10-2	Am-241	6.21E-01 +/- 9.86E-01	1.64E+00		U,G
14733-03-0	Bi-214	9.46E-01 +/- 2.91E-01	3.21E-01		G,J
14762-78-8	Ce-144	6.88E-02 +/- 4.70E-01	8.14E-01		U,G
14093-03-9	Co-56	4.01E-01 +/- 2.28E-01	3.14E-01		G,TI
10198-40-0	Co-60	-5.65E-02 +/- 9.53E-02	1.98E-01		U,G
13967-70-9	Cs-134	4.15E-02 +/- 9.17E-02	1.57E-01		U,G
10045-97-3	Cs-137	7.65E+00 +/- 1.00E+00	2.14E-01	1.00E+00	G
14683-23-9	Eu-152	1.46E-01 +/- 4.35E-01	7.86E-01		U,G
15585-10-1	Eu-154	4.48E-02 +/- 5.46E-01	9.98E-01		U,G
14391-16-3	Eu-155	1.05E-01 +/- 3.31E-01	5.64E-01		U,G
13966-00-2	K-40	3.05E+01 +/- 4.90E+00	1.45E+00		G
15092-94-1	Pb-212	2.31E+00 +/- 3.91E-01	2.85E-01		G
15067-28-4	Pb-214	1.11E+00 +/- 2.79E-01	3.73E-01		G,J
14834-73-2	Pm-144	-6.66E-02 +/- 9.41E-02	1.82E-01		U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0804241-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0804241
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 121 V3098

Field ID: 122226-8
Lab ID: 0804241-8

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 9
Date Collected: 23-Apr-08
Date Prepared: 28-Apr-08
Date Analyzed: 29-Apr-08

Prep Batch: GS080428-1
QCBatchID: GS080428-1-1
Run ID: GS080428-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 290 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 080777d02

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
14834-74-3	Pm-146	2.20E-02 +/- 1.49E-01	2.60E-01		U,G
13967-48-1	Ru-106	-2.65E-01 +/- 8.28E-01	1.56E+00		U,G
14234-35-6	Sb-125	-1.63E-03 +/- 2.65E-01	4.72E-01		U,G
15065-10-8	Th-234	2.29E+00 +/- 2.07E+00	3.33E+00		U,G
14913-50-9	Tl-208	6.40E-01 +/- 1.85E-01	2.09E-01		G
15117-96-1	U-235	4.96E-01 +/- 5.02E-01	8.07E-01		U,G
13982-36-0	Y-88	1.07E-04 +/- 9.30E-02	1.73E-01		U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0804241-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0804241
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 121 V3098

Field ID: 122226-9
Lab ID: 0804241-9

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 9
Date Collected: 23-Apr-08
Date Prepared: 28-Apr-08
Date Analyzed: 29-Apr-08

Prep Batch: GS080428-1
QCBatchID: GS080428-1-1
Run ID: GS080428-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 295 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 080224d03

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
14331-83-0	Ac-228	1.76E+00 +/- 4.67E-01	6.65E-01		G
14596-10-2	Am-241	8.88E-01 +/- 1.31E+00	2.17E+00		U,G
14913-49-6	Bi-212	3.15E+00 +/- 1.67E+00	2.24E+00		G,TI
14733-03-0	Bi-214	9.00E-01 +/- 3.16E-01	3.85E-01		G,J
14762-78-8	Ce-144	-8.57E-02 +/- 6.54E-01	1.14E+00		U,G
10198-40-0	Co-60	1.04E-01 +/- 8.71E-02	1.22E-01		U,G
13967-70-9	Cs-134	-3.65E-02 +/- 1.05E-01	1.94E-01		U,G
10045-97-3	Cs-137	7.37E+00 +/- 9.77E-01	2.01E-01	1.00E+00	G
14683-23-9	Eu-152	2.64E-01 +/- 4.21E-01	7.12E-01		U,G
15585-10-1	Eu-154	-6.22E-02 +/- 4.96E-01	9.53E-01		U,G
14391-16-3	Eu-155	1.27E-01 +/- 3.93E-01	6.66E-01		U,G
13966-00-2	K-40	3.13E+01 +/- 5.09E+00	1.71E+00		G
15092-94-1	Pb-212	2.25E+00 +/- 4.06E-01	3.35E-01		G
15067-28-4	Pb-214	9.83E-01 +/- 2.86E-01	4.06E-01		G,J
14834-73-2	Pm-144	-6.10E-02 +/- 9.57E-02	1.86E-01		U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0804241-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0804241
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 121 V3098

Field ID: 122226-9
Lab ID: 0804241-9

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 9
Date Collected: 23-Apr-08
Date Prepared: 28-Apr-08
Date Analyzed: 29-Apr-08

Prep Batch: GS080428-1
QCBatchID: GS080428-1-1
Run ID: GS080428-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 295 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 080224d03

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
14834-74-3	Pm-146	7.76E-02 +/- 1.82E-01	3.07E-01		U,G
13967-48-1	Ru-106	-3.56E-01 +/- 8.81E-01	1.68E+00		U,G
14234-35-6	Sb-125	2.13E-01 +/- 3.34E-01	6.03E-01		U,G
15065-10-8	Th-234	2.09E+00 +/- 2.23E+00	3.62E+00		U,G
14913-50-9	Tl-208	7.79E-01 +/- 1.97E-01	1.90E-01		G
15117-96-1	U-235	5.73E-01 +/- 6.43E-01	1.04E+00		U,G
13982-36-0	Y-88	1.92E-02 +/- 1.08E-01	1.94E-01		U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0804241-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0804241
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 121 V3098

Field ID: 122226-15
Lab ID: 0804241-10

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 9
Date Collected: 23-Apr-08
Date Prepared: 28-Apr-08
Date Analyzed: 29-Apr-08

Prep Batch: GS080428-1
QCBatchID: GS080428-1-1
Run ID: GS080428-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 456 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 080735d04

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
14331-83-0	Ac-228	3.95E-01 +/- 2.10E-01	3.87E-01		TI
14596-10-2	Am-241	-5.47E-02 +/- 2.76E-01	5.14E-01		U
14733-03-0	Bi-214	4.34E-01 +/- 1.60E-01	1.80E-01		J
14762-78-8	Ce-144	7.53E-02 +/- 2.01E-01	3.47E-01		U
10198-40-0	Co-60	7.05E-03 +/- 3.73E-02	7.59E-02		U
13967-70-9	Cs-134	-3.35E-02 +/- 3.44E-02	7.72E-02		U
10045-97-3	Cs-137	4.33E-01 +/- 1.12E-01	8.64E-02	1.00E+00	LT
14683-23-9	Eu-152	7.03E-02 +/- 1.99E-01	3.78E-01		U
15585-10-1	Eu-154	9.26E-02 +/- 2.39E-01	4.35E-01		U
14391-16-3	Eu-155	5.77E-03 +/- 1.18E-01	2.12E-01		U
13966-00-2	K-40	8.80E+00 +/- 1.98E+00	1.28E+00		
15092-94-1	Pb-212	5.10E-01 +/- 1.37E-01	1.51E-01		
15067-28-4	Pb-214	4.12E-01 +/- 1.22E-01	1.68E-01		J
14834-73-2	Pm-144	3.90E-02 +/- 5.32E-02	8.77E-02		U
14834-74-3	Pm-146	-4.23E-02 +/- 5.96E-02	1.19E-01		U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0804241-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0804241
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 121 V3098

Field ID: 122226-15
Lab ID: 0804241-10

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 9
Date Collected: 23-Apr-08
Date Prepared: 28-Apr-08
Date Analyzed: 29-Apr-08

Prep Batch: GS080428-1
QCBatchID: GS080428-1-1
Run ID: GS080428-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 456 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 080735d04

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13967-48-1	Ru-106	7.64E-02 +/- 3.90E-01	7.19E-01		U
14234-35-6	Sb-125	1.09E-01 +/- 1.18E-01	1.88E-01		U
15065-10-8	Th-234	-7.21E-01 +/- 7.60E-01	1.43E+00		U
14913-50-9	Tl-208	1.47E-01 +/- 7.17E-02	9.29E-02		
15117-96-1	U-235	-7.39E-02 +/- 2.18E-01	4.02E-01		U
13982-36-0	Y-88	-1.69E-02 +/- 5.40E-02	1.10E-01		U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0804241-1*

0804241

NSTec

ANALYTICAL LABORATORY
SERVICES REQUEST AND CHAIN OF CUSTODY RECORD

Page 1 of 2

PROJECT / CLIENT INFORMATION	*REPORT & TURNAROUND INFORMATION*	*SAMPLE INFORMATION*
Project: CAU 12 — BN Org#: H360	Send Report to: Glenn Richardson	Sampling Site: 12-22-26
Charge Number: 5B1366Y5	Phone: 295.5361 — Fax: 295-7761 — M/S: NTS 306	The samples submitted contain (check):
Project Manager: Tom Thiele	Turnaround: ( ) Standard – 14 days IH, 28 days Non-rad Env, 45 days Rad Env	( ) **Hazardous** - *(list)*
Phone: 295-6711 — Fax: 295-7761 — M/S: NTS 306	( ) RUSH Preliminary by: _____ (IH)	( ) **Radioactive** - *(list)*
	___1 ___2 ___7 ___14 (non-Rad Env)	( ) **Unknown** contamination. If known, identify contaminants. This information will ensure compliance with applicable regulations and allow for the safe handling of the sample materials.
	___1 ___7 X 14 ___28 (Radiological Env)	

SAMPLE MANAGEMENT INFORMATION

SDG: _____ (IH) _____ (Non-Rad Env) V3098 (Rad Env)

Samples submitted are associated with a signed Project SOW. (X) YES ( ) NO

Analyses entered here agree with the SOW. (X) YES ( ) NO ( ) N/A

If not, identify the variation: _____

Subcontract Lab(s) used for this work: PARAGON 99297-5

	ID/DESCRIPTION	SAMPLING DATE	SAMPLING TIME	MATRIX	CONTAINER #	CONTAINER Est. Vol	QC MD	QC MS	QC MSD	Pres – Analysis eg. HCl - VOCs	Pay Item, Analysis, Method: GPC-A-003 GPC ALPHA	GPC-A-003 GPC Beta	NGS-A-002 Gamma Spec					
1	122226-1	4/23/08	1300	Soil	1	500					X	X						
	122226-1		1308		1	500							X					
2	122226-2		1310		1	500					X	X						
	122226-2		1310		1	500							X					
3	122226-3		1316		1	500					X	X						
	122226-3		1316		1	500							X					
4	122226-4		1330		1	500					X	X						
	122226-4		1330		1	500							X					
5	122226-5		1340		1	500					X	X						
	122226-5		1340		1	500							X					

CUSTODY TRANSFER

Sampled/Relinquished (print)	Signature	DATE / TIME	Received by (print)	Signature	DATE / TIME
MILLER/DYD	/s/ M Floyd	4/24/08 0851	C.D. CASTANEDA	/s/ C Castaneda	4/24/08 @ 0851
C.D. CASTANEDA	/s/ C Castaneda	4/24/08 @ 1300	FED EX# 7900 00207063,	791052389405	4/24/08 @ 1300
Fed Ex		4/25/08	/s/ S Lafferty	Sheri Lafferty	4/25/08 @ 0915

FRM-0732 (11/06)

0804241

NSTec

ANALYTICAL LABORATORY
SERVICES REQUEST AND CHAIN OF CUSTODY RECORD

Page 2 of 2

PROJECT / CLIENT INFORMATION			*REPORT & TURNAROUND INFORMATION*			*SAMPLE INFORMATION*
Project: CAU 121	BN Org#: H3100		Send Report to: Glenn Richardson			Sampling Site: 12-22-25
Charge Number: TBIB 6685			Phone: 295	Fax: 295-7761	M/S: NTS306	The samples submitted contain (check):
Project Manager: Tom Thiele			Turnaround: ( ) Standard – 14 days IH, 28 days Non-rad Env, 45 days Rad Env			( ) **Hazardous** - *(list)* _____
Phone: 295-6711	Fax: 295-7761	M/S: NTS 306	( ) RUSH Preliminary by: _____ (IH)			( ) **Radioactive** - *(list)* _____
			___1 ___2 ___7 ___14 (non-Rad Env)			( ) **Unknown** contamination. If known, identify contaminants. This information will ensure compliance with applicable regulations and allow for the safe handling of the sample materials.
			___1 ___7 X 14 ___28 (Radiological Env)			

SAMPLE MANAGEMENT INFORMATION

SDG: _____ (IH) _____ (Non-Rad Env) V3098 (Rad Env)
Samples submitted are associated with a signed Project SOW. (X) YES ( ) NO
Analyses entered here agree with the SOW. (X) YES ( ) NO ( ) N/A
If not, identify the variation: _____
Subcontract Lab(s) used for this work: PARAGON 99297-5

	ID/DESCRIPTION	SAMPLING DATE	SAMPLING TIME	MATRIX	CONTAINER #	CONTAINER Est. Vol	QC MD	QC MS	QC MSD	Pres – Analysis eg. HCl - VOCs	Pay Item, Analysis, Method: GPC-A-003 GPC Alpha	GPC-A-003 GPC Beta	NGS-A-002 Gamma Spec					
6	122226-6	4/23/08	1345	Soil	1	500					X	X						
	122226-6	4/23/08	1345										X					
7	122226-7		1350								X	X						
	122226-7		1350										X					
8	122226-8		1400								X	X						
	122226-8		1400										X					
9	122226-9		1405								X	X						
	122226-9		1405										X					
10	122226-15		1445								X	X						
	122226-15		1445										X					

CUSTODY TRANSFER

Sampled/Relinquished (print)	Signature	DATE / TIME	Received by (print)	Signature	DATE / TIME
Mike Floyd	/s/ M Floyd	4/24/08 0851	C.D. CASTANEDA	/s/ C Castaneda	4/24/08@ 0851
C.D. CASTANEDA	/s/ C Castaneda	4/24/08@ 1300	FED EX# 790000207063,	791052389405	4/24/08@ 1300
Fed ex		4/25/08 0915	/s/ S Lafferty	Sheri Lafferty	4/25/08 @ 0915

FRM-0732 (11/06)

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Sample Delivery Group V3106

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Lionville Laboratory, Inc.

DIESEL RANGE ORGANICS BY GC

Report Date: 06/13/08 12:30

RFW Batch Number: **0806L225** Client: **NSTEC V3106** Work Order: 60052001001 Page: 1

	Cust ID:	120102-V1	120102-V2	120102-V3	120102-V3	120102-V3	120102-V4
Sample Information	RFW#:	001	002	003	003 MS	003 MSD	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
	p-Terphenyl	99 %	98 %	96 %	98 %	87 %	76 %
Diesel Range Organics		3530 U	3480 U	3530 U	90 %	90 %	3420 U
Motor Oil Range Organics		6100 J	7000 J	8100 J	NS	NS	68000

	Cust ID:	120102-V5	120102-V6	BLK	BLK BS
Sample Information	RFW#:	005	006	08LE0281-MB1	08LE0281-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00
	Units:	ug/kg	ug/kg	ug/kg	ug/kg
	p-Terphenyl	98 %	101 %	92 %	81 %
Diesel Range Organics		3470 U	3490 U	3330 U	108 %
Motor Oil Range Organics		14000	6900 J	10000 U	NS

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 06/13/08 13:39

RFW Batch Number: **0806L225** Client: **NSTEC V3106** Work Order: 60052001001 Page: 1

	Cust ID:	120102-V1	120102-V1	120102-V1	120102-V2	120102-V3	120102-V4
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	10.0
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	95 %	100 %	101 %	110 %	96 %	124 %
	Decachlorobiphenyl	93 %	92 %	101 %	106 %	91 %	117 %
Aroclor-1016		14 U	102 %	105 %	14 U	14 U	140 U
Aroclor-1221		14 U	14 U	14 U	14 U	14 U	140 U
Aroclor-1232		14 U	14 U	14 U	14 U	14 U	140 U
Aroclor-1242		14 U	14 U	14 U	14 U	14 U	140 U
Aroclor-1248		14 U	14 U	14 U	14 U	14 U	140 U
Aroclor-1254		34	NR	NR	48	27	1100
Aroclor-1260		14 U	104 %	109 %	14 U	14 U	140 U

	Cust ID:	120102-V5	120102-V6	PBLKRG	PBLKRG BS
Sample Information	RFW#:	005	006	08LE0279-MB1	08LE0279-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	100 %	84 %	105 %	119 %
	Decachlorobiphenyl	99 %	83 %	104 %	126 %
Aroclor-1016		14 U	14 U	13 U	112 %
Aroclor-1221		14 U	14 U	13 U	13 U
Aroclor-1232		14 U	14 U	13 U	13 U
Aroclor-1242		14 U	14 U	13 U	13 U
Aroclor-1248		14 U	14 U	13 U	13 U
Aroclor-1254		120	32	13 U	13 U
Aroclor-1260		14 U	14 U	13 U	125 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

RFW Batch Number: 0806L225 Client: NSTEC V3106 Work Order: 60052001001 Report Date: 06/21/08 06:28 Page: 1a

	Cust ID:	120102-V1	120102-V2	120102-V2	120102-V2	120102-V3	120102-V4
Sample Information	RFW#:	001	002	002 MS	002 MSD	003	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Nitrobenzene-d5	54 %	49 %	63 %	65 %	49 %	53 %
	2-Fluorobiphenyl	59 %	52 %	71 %	71 %	55 %	68 %
	Terphenyl-d14	71 %	79 %	85 %	93 %	73 %	92 %
	Phenol-d5	59 %	56 %	77 %	63 %	57 %	64 %
	2-Fluorophenol	58 %	55 %	67 %	66 %	55 %	58 %
	2,4,6-Tribromophenol	42 %	49 %	60 %	77 %	50 %	73 %
Phenol		350 U	350 U	86 %	85 %	350 U	340 U
bis(2-Chloroethyl)ether		350 U	350 U	57 %	57 %	350 U	340 U
2-Chlorophenol		350 U	350 U	64 %	63 %	350 U	340 U
1,3-Dichlorobenzene		350 U	350 U	53 %	52 %	350 U	340 U
1,4-Dichlorobenzene		350 U	350 U	52 %	52 %	350 U	340 U
1,2-Dichlorobenzene		350 U	350 U	57 %	56 %	350 U	340 U
2-Methylphenol		350 U	350 U	62 %	65 %	350 U	340 U
2,2'-oxybis(1-Chloropropane)		350 U	350 U	60 %	59 %	350 U	340 U
3/4 Methylphenol		350 U	350 U	75 %	70 %	350 U	340 U
N-Nitroso-di-n-propylamine		350 U	350 U	68 %	65 %	350 U	340 U
Hexachloroethane		350 U	350 U	51 %	53 %	350 U	340 U
Nitrobenzene		350 U	350 U	60 %	62 %	350 U	340 U
Isophorone		350 U	350 U	71 %	73 %	350 U	340 U
2-Nitrophenol		350 U	350 U	68 %	68 %	350 U	340 U
2,4-Dimethylphenol		350 U	350 U	76 %	86 %	350 U	340 U
bis(2-Chloroethoxy)methane		350 U	350 U	68 %	68 %	350 U	340 U
2,4-Dichlorophenol		350 U	350 U	80 %	82 %	350 U	340 U
1,2,4-Trichlorobenzene		350 U	350 U	59 * %	61 %	350 U	340 U
Naphthalene		350 U	350 U	61 %	62 %	350 U	340 U
4-Chloroaniline		350 U	350 U	49 %	61 %	350 U	340 U
Hexachlorobutadiene		350 U	350 U	63 %	66 %	350 U	340 U
4-Chloro-3-methylphenol		350 U	350 U	89 %	84 %	350 U	340 U
2-Methylnaphthalene		350 U	350 U	69 %	71 %	350 U	340 U
Hexachlorocyclopentadiene		350 U	350 U	32 %	29 %	350 U	340 U
2,4,6-Trichlorophenol		350 U	350 U	38 %	57 %	350 U	340 U
2,4,5-Trichlorophenol		880 U	870 U	117 %	125 %	880 U	860 U

*= Outside of EPA CLP QC limits.

Cust ID:	120102-V1		120102-V2		120102-V2		120102-V2		120102-V3		120102-V4	
RFW#:	001		002		002 MS		002 MSD		003		004	
2-Chloronaphthalene	350	U	350	U	71	%	72	%	350	U	340	U
2-Nitroaniline	880	U	870	U	83	%	84	%	880	U	860	U
Dimethylphthalate	350	U	350	U	77	%	80	%	350	U	340	U
Acenaphthylene	350	U	350	U	74	%	76	%	350	U	340	U
2,6-Dinitrotoluene	350	U	350	U	78	%	82	%	350	U	340	U
3-Nitroaniline	880	U	870	U	65	%	78	%	880	U	860	U
Acenaphthene	350	U	350	U	72	%	74	%	350	U	22	J
2,4-Dinitrophenol	880	U	870	U	124 *	%	123 *	%	880	U	860	U
4-Nitrophenol	880	U	870	U	87	%	124	%	880	U	860	U
Dibenzofuran	350	U	350	U	76	%	78	%	350	U	340	U
2,4-Dinitrotoluene	350	U	350	U	82	%	88	%	350	U	340	U
Diethylphthalate	350	U	350	U	78	%	82	%	350	U	340	U
4-Chlorophenyl-phenylether	350	U	350	U	74	%	76	%	350	U	340	U
Fluorene	350	U	350	U	77	%	78	%	350	U	340	U
4-Nitroaniline	880	U	870	U	62	%	71	%	880	U	860	U
4,6-Dinitro-2-methylphenol	880	U	870	U	99	%	95	%	880	U	860	U
N-Nitrosodiphenylamine (1)	350	U	350	U	60	%	61	%	350	U	340	U
4-Bromophenyl-phenylether	350	U	350	U	69	%	69	%	350	U	340	U
Hexachlorobenzene	350	U	350	U	79	%	80	%	350	U	340	U
Pentachlorophenol	880	U	870	U	99	%	100	%	880	U	860	U
Phenanthrene	29	J	34	J	76	%	79	%	350	U	230	J
Anthracene	350	U	350	U	77	%	81	%	350	U	35	J
Carbazole	350	U	350	U	70	%	75	%	350	U	21	J
Di-n-butylphthalate	350	U	350	U	73	%	77	%	350	U	21	J
Fluoranthene	62	J	84	J	78	%	78	%	29	J	440	
Pyrene	70	J	93	J	84	%	93	%	33	J	590	
Butylbenzylphthalate	31	J	56	J	88	%	94	%	350	U	110	J
3,3'-Dichlorobenzidine	350	U	350	U	21	%	49	%	350	U	340	U
Benzo(a)anthracene	32	J	45	J	80	%	86	%	350	U	240	J
Chrysene	40	J	56	J	83	%	86	%	19	J	290	J
bis(2-Ethylhexyl)phthalate	250	JB	370	B	89	%	86	%	57	JB	130	JB
Di-n-octyl phthalate	350	U	350	U	87	%	94	%	350	U	340	U
Benzo(b)fluoranthene	25	J	34	J	76	%	79	%	350	U	180	J
Benzo(k)fluoranthene	26	J	47	J	77	%	84	%	350	U	210	J
Benzo(a)pyrene	23	J	26	J	79	%	86	%	350	U	230	J
Indeno(1,2,3-cd)pyrene	350	U	350	U	83	%	87	%	350	U	130	J
Dibenz(a,h)anthracene	350	U	350	U	85	%	88	%	350	U	49	J
Benzo(g,h,i)perylene	350	U	28	J	80	%	82	%	350	U	140	J

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

Lionville Laboratory, Inc.
Semivolatiles by GC/MS, HSL List

RFW Batch Number: 0806L225 Client: NSTEC V3106 Work Order: 60052001001 Report Date: 06/21/08 06:28 Page: 2a

	Cust ID:	120102-V5		120102-V6		SBLKVI		SBLKVI BS	
Sample Information	RFW#:	005		006		08LE0280-MB1		08LE0280-MB1	
	Matrix:	SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00		1.00	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Surrogate Recovery	Nitrobenzene-d5	60	%	54	%	63	%	53	%
	2-Fluorobiphenyl	66	%	58	%	63	%	69	%
	Terphenyl-d14	84	%	69	%	79	%	72	%
	Phenol-d5	69	%	59	%	57	%	64	%
	2-Fluorophenol	68	%	61	%	60	%	60	%
	2,4,6-Tribromophenol	65	%	33	%	42	%	46	%
Phenol		350	U	350	U	330	U	62	%
bis(2-Chloroethyl)ether		350	U	350	U	330	U	57	%
2-Chlorophenol		350	U	350	U	330	U	60	%
1,3-Dichlorobenzene		350	U	350	U	330	U	55	%
1,4-Dichlorobenzene		350	U	350	U	330	U	54	%
1,2-Dichlorobenzene		350	U	350	U	330	U	55	%
2-Methylphenol		350	U	350	U	330	U	62	%
2,2'-oxybis(1-Chloropropane)		350	U	350	U	330	U	59	%
3/4 Methylphenol		350	U	350	U	330	U	63	%
N-Nitroso-di-n-propylamine		350	U	350	U	330	U	62	%
Hexachloroethane		350	U	350	U	330	U	53	%
Nitrobenzene		350	U	350	U	330	U	49 *	%
Isophorone		350	U	350	U	330	U	56 *	%
2-Nitrophenol		350	U	350	U	330	U	53	%
2,4-Dimethylphenol		350	U	350	U	330	U	51	%
bis(2-Chloroethoxy)methane		350	U	350	U	330	U	54	%
2,4-Dichlorophenol		350	U	350	U	330	U	53	%
1,2,4-Trichlorobenzene		350	U	350	U	330	U	49 *	%
Naphthalene		350	U	350	U	330	U	50	%
4-Chloroaniline		350	U	350	U	330	U	45	%
Hexachlorobutadiene		350	U	350	U	330	U	52	%
4-Chloro-3-methylphenol		350	U	350	U	330	U	63	%
2-Methylnaphthalene		350	U	350	U	330	U	53 *	%
Hexachlorocyclopentadiene		350	U	350	U	330	U	45	%
2,4,6-Trichlorophenol		350	U	350	U	330	U	51	%
2,4,5-Trichlorophenol		870	U	870	U	830	U	69	%

*= Outside of EPA CLP QC limits.

Cust ID:	120102-V5		120102-V6		SBLKVI		SBLKVI BS		
RFW#:	005		006		08LE0280-MB1		08LE0280-MB1		
2-Chloronaphthalene	350	U	350	U	330	U	64		%
2-Nitroaniline	870	U	870	U	830	U	73		%
Dimethylphthalate	350	U	350	U	330	U	71		%
Acenaphthylene	350	U	350	U	330	U	67		%
2,6-Dinitrotoluene	350	U	350	U	330	U	71		%
3-Nitroaniline	870	U	870	U	830	U	60		%
Acenaphthene	350	U	350	U	330	U	66		%
2,4-Dinitrophenol	870	U	870	U	830	U	75		%
4-Nitrophenol	870	U	870	U	830	U	64		%
Dibenzofuran	350	U	350	U	330	U	69		%
2,4-Dinitrotoluene	350	U	350	U	330	U	77		%
Diethylphthalate	350	U	350	U	330	U	72		%
4-Chlorophenyl-phenylether	350	U	350	U	330	U	67		%
Fluorene	350	U	350	U	330	U	70		%
4-Nitroaniline	870	U	870	U	830	U	66		%
4,6-Dinitro-2-methylphenol	870	U	870	U	830	U	68		%
N-Nitrosodiphenylamine (1)	350	U	350	U	330	U	53		%
4-Bromophenyl-phenylether	350	U	350	U	330	U	58		%
Hexachlorobenzene	350	U	350	U	330	U	69		%
Pentachlorophenol	870	U	870	U	830	U	71		%
Phenanthrene	120	J	350	U	330	U	69		%
Anthracene	18	J	350	U	330	U	70		%
Carbazole	350	U	350	U	330	U	70		%
Di-n-butylphthalate	350	U	350	U	330	U	71		%
Fluoranthene	250	J	26	J	330	U	75		%
Pyrene	300	J	29	J	330	U	66		%
Butylbenzylphthalate	120	J	350	U	330	U	74		%
3,3'-Dichlorobenzidine	350	U	350	U	330	U	19	*	%
Benzo(a)anthracene	120	J	350	U	330	U	71		%
Chrysene	170	J	350	U	330	U	72		%
bis(2-Ethylhexyl)phthalate	210	JB	220	JB	95	J	86		%
Di-n-octyl phthalate	350	U	350	U	330	U	86		%
Benzo(b)fluoranthene	92	J	350	U	330	U	73		%
Benzo(k)fluoranthene	120	J	350	U	330	U	76		%
Benzo(a)pyrene	120	J	350	U	330	U	73		%
Indeno(1,2,3-cd)pyrene	69	J	350	U	330	U	71		%
Dibenz(a,h)anthracene	32	J	350	U	330	U	74		%
Benzo(g,h,i)perylene	66	J	350	U	330	U	67		%

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

NSTec

ANALYTICAL LABORATORY
SERVICES REQUEST AND CHAIN OF CUSTODY RECORD

Page ____ of ____

PROJECT / CLIENT INFORMATION

Project: CAU 171 | BN Org#: N300

Charge Number: 5B1B66W4

Project Manager: Tom Thiele

Phone: 5-6711 | Fax: 5-7761 | M/S: NTS 306

REPORT & TURNAROUND INFORMATION

Send Report to: Glenn Richardson

Phone: 5-5361 | Fax: 5-7761 | M/S: NTS 306

Turnaround: ( ) Standard – 14 days IH, 28 days Non-rad Env, 45 days Rad Env
( ) RUSH Preliminary by: _____ (IH)
__1 __2 X 7 __14 (non-Rad Env)
__1 __7 __14 __28 (Radiological Env)

SAMPLE INFORMATION

Sampling Site: CAS 12-01-02

The samples submitted contain (check);
( ) **Hazardous** - *(list)* _____
( ) **Radioactive** - *(list)* _____
( ) **Unknown** contamination. If known, identify contaminants. This information will ensure compliance with applicable regulations and allow for the safe handling of the sample materials.

SAMPLE MANAGEMENT INFORMATION

SDG: _____ (IH) V3106 (Non-Rad Env) _____ (Rad Env)

Samples submitted are associated with a signed Project SOW. (X) YES ( ) NO

Analyses entered here agree with the SOW. (X) YES ( ) NO ( ) N/A

If not, identify the variation: _____

Subcontract Lab(s) used for this work: LIONVILLE - 99291-7

ID/DESCRIPTION	SAMPLING DATE	SAMPLING TIME	MATRIX	CONTAINER #	CONTAINER Est. Vol	QC MD	QC MS	QC MSD	Pres – Analysis eg. HCl - VOCs	Pay Item, Analysis, Method: 7.2 SVOC	8.1 PCB	10.21 TPH oil/DIESEL					
120102-V1	6/2/08	1015	SOIL	1	500					/	/	/					
120102-V2		1020								/	/	/					
120102-V3		1025								/	/	/					
120102-V4		1030								/	/	/					
120102-V5		1035								/	/	/					
120102-V6		1040								/	/	/					
LAST ITEM																	

CUSTODY TRANSFER

Sampled/Relinquished (print)	Signature	DATE / TIME	Received by (print)	Signature	DATE / TIME
Mike Floyd	/s/ M Floyd	~~6/2/08 1515~~ MSF 6/3/08@0740	C.D. CASTANEDA	/s/ C Castaneda	6/3/08@ 0740
C.D. CASTANEDA	/s/ C Castaneda	6/3/08@1300	FedEx #	7993 3389 2795	6/3/08@1300
FedEx		6/4/08@0940	VICTOR HERNANDEZ	/s/ V Hernandez	6/4/08@ 0940

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Sample Delivery Group V3112

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	Cust ID:	120102-V4A	120102-V5A	SBLKVT	SBLKVT BS	SBLKVT BSD
Sample Information	RFW#:	001	002	08LE0301-MB1	08LE0301-MB1	08LE0301-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Nitrobenzene-d5	71 %	80 %	72 %	86 %	85 %
	2-Fluorobiphenyl	65 %	77 %	68 %	90 %	88 %
	Terphenyl-d14	83 %	93 %	106 %	95 %	95 %
Benzo(a)pyrene		260	260	170 U	89 %	90 %
Dibenz(a,h)anthracene		56 J	65 J	170 U	77 %	75 %

*= Outside of EPA CLP QC limits.

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 06/27/08 12:45

RFW Batch Number: **0806L320** Client: **NSTEC #V3112** Work Order: 60052001001 Page: 1

	Cust ID:	**120102-V4A**		**120102-V5A**		**PBLKRW**		**PBLKRW BS**	
Sample Information	RFW#:	**001**		**002**		**08LE0304-MB1**		**08LE0304-MB1**	
	Matrix:	SOIL		SOIL		SOIL		SOIL	
	D.F.:	10.0		10.0		1.00		1.00	
	Units:	UG/KG		UG/KG		UG/KG		UG/KG	
Surrogate:	Tetrachloro-m-xylene	127	%	121	%	129	%	132	%
	Decachlorobiphenyl	104	%	99	%	110	%	108	%
Aroclor-1016		140	U	140	U	13	U	96	%
Aroclor-1221		140	U	140	U	13	U	13	U
Aroclor-1232		140	U	140	U	13	U	13	U
Aroclor-1242		140	U	140	U	13	U	13	U
Aroclor-1248		140	U	140	U	13	U	13	U
Aroclor-1254		430		200		13	U	13	U
Aroclor-1260		140	U	140	U	13	U	97	%

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

NSTec

ANALYTICAL LABORATORY

SERVICES REQUEST AND CHAIN OF CUSTODY RECORD

Page ____ of ____

PROJECT / CLIENT INFORMATION

Project: CAU 121 | BN Org#: 4300

Charge Number: 5BIB 6604

Project Manager: Tom Thiele

Phone: 5-6711 | Fax: 5-7761 | M/S: NTS 306

REPORT & TURNAROUND INFORMATION

Send Report to: Glenn Richardson

Phone: 5-5361 | Fax: 5-7761 | M/S: NTS 306

Turnaround: ( ) Standard – 14 days IH, 28 days Non-rad Env, 45 days Rad Env
( ) RUSH Preliminary by: _____ (IH)
__1 __2 X 7 __14 (non-Rad Env)
__1 __7 __14 __28 (Radiological Env)

SAMPLE INFORMATION

Sampling Site: CAS 12-01-02

The samples submitted contain (check);
( ) **Hazardous** - *(list)* _____
( ) **Radioactive** - *(list)* _____
( ) **Unknown** contamination. If known, identify contaminants. This information will ensure compliance with applicable regulations and allow for the safe handling of the sample materials.

SAMPLE MANAGEMENT INFORMATION

SDG: _____ (IH) V3112 (Non-Rad Env) _____ (Rad Env)

Samples submitted are associated with a signed Project SOW. (X) YES ( ) NO

Analyses entered here agree with the SOW. (X) YES ( ) NO ( ) N/A

If not, identify the variation: _____

Subcontract Lab(s) used for this work: LIONVILLE 99291-8

ID/DESCRIPTION	SAMPLING DATE	SAMPLING TIME	MATRIX	CONTAINER #	CONTAINER Est. Vol	QC MD	QC MS	QC MSD	Pres – Analysis eg. HCl - VOCs	Pay Item, Analysis, Method 7.2 SVOC	8.1 PCB
120102-V4A	6/19/08	0900	SOIL	1	500					x	x
120102-V5A	6/19/08	1110	"	1	"					x	x

CUSTODY TRANSFER

Sampled/Relinquished (print)	Signature	DATE / TIME	Received by (print)	Signature	DATE / TIME
Mike Floyd	/s/ M Floyd	6/19/08 1120	A. Saluato	/s/ P Saluato	6-19-08 11:20
Pam Saluato	/s/ P Saluato	6-19-08 12:55	Robert Greer	/s/ R Greer	6/19/08 12:55
Robert Greer	/s/ R Greer	6/19/08 13:18	C.D. Castaneda	/s/ C Castaneda	6/19/08 @ 13:18
C.D. Castaneda	/s/ C Castaneda	6/19/08 @ 1400	Fed Ex #	~~79207418~~	6/19/08 @ 1400
(Fed Ex		6.20.08 10:10	D. Smith	792074188790	

FRM-0732 (11/06)

6-20-08 10:10

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Sample Delivery Group V3130

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Lionville Laboratory, Inc.

DIESEL RANGE ORGANICS BY GC

Report Date: 07/18/08 07:36

RFW Batch Number: **0807L432** Client: **NSTEC V3130** Work Order: 60052001001 Page: 1

	Cust ID:	120102-V1B	120102-V1B	120102-V1B	120102-V2B	120102-V3B	120102-V4B
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
p-Terphenyl		82 %	64 %	72 %	99 %	105 %	105 %
Diesel Range Organics		3510 U	73 %	71 %	3440 U	3400 U	3470 U
Motor Oil Range Organics		10500 U	NS	NS	8800 J	68000	83000

	Cust ID:	120102-V5B	120102-V6B	120102-V7B	BLK	BLK BS
Sample Information	RFW#:	005	006	007	08LE0334-MB1	08LE0334-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
p-Terphenyl		78 %	95 %	91 %	83 %	59 %
Diesel Range Organics		3420 U	3460 U	3330 U	3330 U	72 %
Motor Oil Range Organics		98000	12000	43000	10000 U	NS

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Lionville Laboratory, Inc.
Base/Neutrals by GC/MS

Report Date: 07/22/08 15:08

RFW Batch Number: **0807L432** Client: **NSTEC V3130** Work Order: 60052001001 Page: 1a

	Cust ID:	120102-V1B	120102-V1B	120102-V1B	120102-V2B	120102-V3B	120102-V4B
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Nitrobenzene-d5	59 %	57 %	73 %	60 %	51 %	63 %
	2-Fluorobiphenyl	64 %	68 %	73 %	65 %	60 %	73 %
	Terphenyl-d14	74 %	82 %	90 %	75 %	79 %	83 %
Benzo(a)pyrene		180 U	69 %	78 %	20 J	780	570
Dibenz(a,h)anthracene		180 U	71 %	81 %	170 U	270	190

	Cust ID:	120102-V5B	120102-V6B	120102-V7B	SBLKWF	SBLKWF BS
Sample Information	RFW#:	005	006	007	08LE0333-MB1	08LE0333-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Nitrobenzene-d5	67 %	60 %	58 %	75 %	78 %
	2-Fluorobiphenyl	64 %	67 %	62 %	68 %	75 %
	Terphenyl-d14	74 %	82 %	71 %	76 %	86 %
Benzo(a)pyrene		470	35 J	170 U	170 U	79 %
Dibenz(a,h)anthracene		150 J	170 U	170 U	170 U	85 %

*= Outside of EPA CLP QC limits.

NSTec

ANALYTICAL LABORATORY

SERVICES REQUEST AND CHAIN OF CUSTODY RECORD

Page ____ of ____

PROJECT / CLIENT INFORMATION

Project: CAU 121 | BN Org#: N300

Charge Number: 5B1B66Y5

Project Manager: Tom Thiele

Phone: 295-6711 | Fax: 295-7761 | M/S: NTS 306

REPORT & TURNAROUND INFORMATION

Send Report to: Glenn Richardson

Phone: 295-5761 | Fax: 295-7721 | M/S: NTS 306

Turnaround: ( ) Standard – 14 days IH, 28 days Non-rad Env, 45 days Rad Env
( ) RUSH Preliminary by: _____ (IH)
___1 ___2 X 7 ___14 (non-Rad Env)
___1 ___7 ___14 ___28 (Radiological Env)

SAMPLE INFORMATION

Sampling Site: 12-01.02

The samples submitted contain (check);
( ) **Hazardous** - *(list)* _____
( ) **Radioactive** - *(list)* _____
( ) **Unknown** contamination. If known, identify contaminants. This information will ensure compliance with applicable regulations and allow for the safe handling of the sample materials.

SAMPLE MANAGEMENT INFORMATION

SDG: _____ (IH) V3130 (Non-Rad Env) _____ (Rad Env)

Samples submitted are associated with a signed Project SOW. (Y) YES ( ) NO

Analyses entered here agree with the SOW. (Y) YES ( ) NO ( ) N/A

If not, identify the variation: _____

Subcontract Lab(s) used for this work: LIONVILLE - RELEASE # 99291-15

ID/DESCRIPTION	SAMPLING DATE	SAMPLING TIME	MATRIX	CONTAINER #	CONTAINER Est. Vol	QC MD	QC MS	QC MSD	Pres – Analysis eg. HCl - VOCs	Pay Item, Analysis, Method: 7.2 SVOC * 8270C	10.21 TPH (DIESEL/OIL) 8015B-Mod	8.1 PCB 8082
120102-V1B	7/10/08	1255	SOIL	1	500ml		X	X		X	X	
120102-V2B		1300								X	X	
120102-V3B		1305								X	X	
120102-V4B		1310								X	X	
120102-V5B		1315								X	X	
120102-VCB		1320								X	X	
120102-V7B		0950	SOIL LIKE MAT.							X	X	X

* SAMPLE NUMBER 1201 02-V7B SVOC REPORT SHOULD PROVIDE ALL SVOC LEVELS. ALL OTHER SAMPLES NEED ONLY REPORT BENZO(A)PYRENE AND DIBENZ(A,H) ANTHRACENE CONCENTRATIONS

CUSTODY TRANSFER

Sampled/Relinquished (print)	Signature	DATE / TIME	Received by (print)	Signature	DATE / TIME
MIKE FLOYD	/s/ M Floyd	7/10/08 1531	/s/ C Castaneda	C.A. CASTANEDA	7/10/08@1531
C.A. CASTANEDA	/s/ C Castaneda	7/11/08@0800	Fed Ex	7919 8801 7875	7/11/08@0800
	Fed Ex	7.12.08/11:10	D Smith	/s/ D Smith	7.12.08/11:10

* THE REPORTING LIMIT FOR BENZO(A)PYRENE AND DIBENZ(A,H)ANTHRACENE MUST BE 170 ug/kg OR LESS.

FRM-0732 (11/06)

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APPENDIX C

WASTE DISPOSITION DOCUMENTATION

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Tank Disposition

- Corrective Action Sites 12-01-01 and 12-01-02, Aboveground Storage Tanks
- Corrective Action Site 12-22-26, Drums; 2 AST's

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NSTec Form FRM-0918

NTS LANDFILL LOAD VERIFICATION

08/23/06 Rev. 0 Page 1 of 2

SWO USE (Select One) AREA ☐ 23 ☐ 6 ☒ 9 ☒ LANDFILL

For waste characterization, approval, and/or assistance, contact Solid Waste Operation (SWO) at 5-7898.

REQUIRED: WASTE GERERATOR INFORMATION

(This form is for rolloffs, dump trucks, and other onsite disposal of materials.)

Waste Generator: MIKE FLOYD Phone Number: 5-6653

Location / Origin: CAU 121 // area 12 camp

Waste Category: (check one)	☐ Commercial	☒ Industrial		
Waste Type: (check one)	☒ NTS	☐ Putrescrible	☒ FFACO-onsite	☐ WAC Exception
	☐ Non-Putrescible	☐ Asbestos Containing Material	☐ FFACO-offsite	☐ Historic DOE/NV
Pollution Prevention Category: (check one)	☒ Environmental management	☐ Defense Projects	☐ YMP	
Pollution Prevention Category: (check one)	☒ Clean-Up	☐ Routine		
Method of Characterization: (check one)	☒ Sampling & Analysis	☐ Process Knowledge	☐ Contents	

Prohibited Waste at all three NTS landfills: Radioactive waste; RCRA waste; Hazardous waste; Free liquids, PCBs above TSCA regulatory levels, and Medical wastes (needles, sharps, bloody clothing).

Additional Prohibited Waste at the Area 9 U10C Landfill: Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos

REQUIRED: WASTE CONTENTS ALLOWABLE WASTES

Check all allowable wastes that are contained within this load:

NOTE: Waste disposal at the Area 6 Hydrocarbon Landfill must have come into contact with petroleum hydrocarbons or coolants, such as: gasoline (no benzene, lead); jet fuel; diesel fuel; lubricants and hydraulics; kerosene; asphaltic petroleum hydrocarbon; and ethylene glycol.

Acceptable waste at any NTS landfill:

☐ Asphalt	☒ Metal	☐ Wood	☐ Soil	☐ Paper	☐ Rocks / unaltered geologic materials	☐ Empty containers
☐ Plastic	☐ Wire	☐ Cable	☐ Cloth	☐ Rubber (excluding tires)	☒ Demolition debris	
☐ Insulation (non-Asbestosform)	☐ Cement & concrete					

☐ Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.)

Additional waste accepted at the Area 23 Mercury Landfill: ☐ Office Waste ☐ Food Waste ☐ Animal Carcasses

☐ Asbestos ☐ Friable ☒ Non-Friable (contact SWO if regulated load) Quantity: _____

Additional waste accepted at the Area 9 U10c Landfill:

☐ Non-friable asbestos	☐ Drained automobiles and military vehicles	☐ Solid fractions from sand/oil/water
☐ Light ballasts (contact SWO)	☐ Drained fuel filters (gas & diesel)	☐ Deconned Underground and Above Ground Tanks
☐ Hydrocarbons (contact SWO)	☐ Other _____	

Additional waste accepted at the Area 6 Hydrocarbon Landfill: ☐ _____

☐ Septic sludge	☐ Rags	☐ Drained fuel filters (gas & diesel)	☐ Crushed non-teme plated oil filters
☐ Plants	☐ Soil	☐ Sludge from sand/oil/water separators	☐ PCBs below 50 parts per million

REQUIRED: WASTE GENERATOR SIGNATURE

Initials: _____ (if initialed, no radiological clearance is necessary.)

The above mentioned waste was generated outside of a Controlled Waste Management Area (CWMA) and to the best of my knowledge, does not contain radiological materials.

To the best of my knowledge, the waste described above contains only those mate site. I have verified this through the waste characterization method identified abov prohibited and allowable waste items. I have contacted Property Management and is approved for disposal in the landfill.

Print Name: Mike Floyd

Signature: /s/ Mike Floyd Date: 2/13/08

Note: "Food waste, office trash and animal carcasses do not require a radiological clearance. [illegible] must have signed removal certification statement with Load Verification."

Radiological Survey Release for Waste Disposal

RCT Initials

____ **This container/load meets the criteria for no added man-made radioactive material**

RM **This container/load meets the criteria for Radcon Manual Table 4.2 release limits.**

____ **This container/load is exempt from survey due to process knowledge and origin.**

SIGNATURE: /s/ B H **DATE:** 2-13-08

BN-0646 (10/05)

SWO USE ONLY

Load Weight (net from scale or estimate): 1835 2-13-08 Signature of Certifier: /s/ D Bickford

NSTec Form FRM-0918

NTS LANDFILL LOAD VERIFICATION

08/23/06 Rev. 0 Page 1 of 2

SWO USE (Select One) AREA ☐ 23 ☐ 6 ☒ 9 ☒ **LANDFILL**

For waste characterization, approval, and/or assistance, contact Solid Waste Operation (SWO) at 5-7898.

REQUIRED: WASTE GENERATOR INFORMATION

(This form is for rolloffs, dump trucks, and other onsite disposal of materials.)

Waste Generator: GLENN RICHARDSON Phone Number: 5-5361

Location / Origin: CAU 121

Waste Category: (check one)		☐ Commercial	☒ Industrial	
Waste Type: (check one)	☐ NTS	☐ Putrescible	☒ FFACO-onsite	☐ WAC Exception
	☐ Non-Putrescible	☐ Asbestos Containing Material	☐ FFACO-offsite	☐ Historic DOE/NV
Pollution Prevention Category: (check one)		☒ Environmental management	☐ Defense Projects	☐ YMP
Pollution Prevention Category: (check one)		☒ Clean-Up	☐ Routine	
Method of Characterization: (check one)		☐ Sampling & Analysis	☒ Process Knowledge	☐ Contents

Prohibited Waste at all three NTS landfills: Radioactive waste; RCRA waste; Hazardous waste; Free liquids, PCBs above TSCA regulatory levels, and Medical wastes (needles, sharps, bloody clothing).

Additional Prohibited Waste at the Area 9 U10C Landfill: Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos

REQUIRED: WASTE CONTENTS ALLOWABLE WASTES

Check all allowable wastes that are contained within this load:

NOTE: Waste disposal at the Area 6 Hydrocarbon Landfill must have come into contact with petroleum hydrocarbons or coolants, such as: gasoline (no benzene, lead); jet fuel; diesel fuel; lubricants and hydraulics; kerosene; asphaltic petroleum hydrocarbon; and ethylene glycol.

Acceptable waste at any NTS landfill:

☐ Asphalt ☐ Metal ☐ Wood ☐ Soil ☐ Paper ☐ Rocks / unaltered geologic materials ☐ Empty containers
☐ Plastic ☐ Wire ☐ Cable ☐ Cloth ☐ Rubber (excluding tires) ☐ Demolition debris
☐ Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.) ☐ Insulation (non-Asbestosform) ☐ Cement & concrete

Additional waste accepted at the Area 23 Mercury Landfill: ☐ Office Waste ☐ Food Waste ☐ Animal Carcasses
☐ Asbestos ☐ Friable ☐ Non-Friable (contact SWO if regulated load) Quantity: _____

Additional waste accepted at the Area 9 U10c Landfill:

☐ Non-friable asbestos ☐ Drained automobiles and military vehicles ☐ Solid fractions from sand/oil/water
☐ Light ballasts (contact SWO) ☐ Drained fuel filters (gas & diesel) ☐ Deconned Underground and Above
☐ Hydrocarbons (contact SWO) ☒ Other Empty 500-gal diesel tank Ground Tanks

Additional waste accepted at the Area 6 Hydrocarbon Landfill: ☐ _____

☐ Septic sludge ☐ Rags ☐ Drained fuel filters (gas & diesel) ☐ Crushed non-teme plated oil filters
☐ Plants ☐ Soil ☐ Sludge from sand/oil/water separators ☐ PCBs below 50 parts per million

REQUIRED: WASTE GENERA

Initials: ____ **(if initialed, no radiological clearance is necessary.)**

The above mentioned waste was generated outside of a Controlled Wa knowledge, does not contain radiological materials.

To the best of my knowledge, the waste described above contains only site. I have verified this through the waste characterization method ide prohibited and allowable waste items. I have contacted Property Mana is approved for disposal in the landfill.

Print Name: GLENN RICHARDSON

Signature: /s/ G Richardson Date: 4/17/08

Note: "Food waste, office trash and animal carcasses do not require a radiological clearance. Freon-containing appliances must have signed removal certification statement with Load Verification."

Radiological Survey Release for Waste Disposal
RCT Initials

____ This container/load meets the criteria for no added man-made radioactive material
____ This container/load meets the criteria for Radcon Manual Table 4.2 release limits.
BY This container/load is exempt from survey due to process knowledge and origin.

SIGNATURE: See original DATE: 4-17-08

BN-0646 (10/05)

If applicable, place FRM-0845, "Radiological Release Sticker" here. Onsite use only.

SWO USE ONLY

Load Weight (net from scale or estimate): 1,500 4-17-08 Signature of Certifier: /s/ D Bickford

Excavated Soil Disposition

Corrective Action Site 12-01-02, Aboveground Storage Tank

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(3)

NSTec Form FRM-0918

NTS LANDFILL LOAD VERIFICATION

08/23/06 Rev. 0 Page 1 of 2

SWO USE (Select One) AREA ☐ 23 ☐ 6 ☒ 9 ☒ **LANDFILL**

For waste characterization, approval, and/or assistance, contact Solid Waste Operation (SWO) at 5-7898.

REQUIRED: WASTE GERERATOR INFORMATION

(This form is for rolloffs, dump trucks, and other onsite disposal of materials.)

Waste Generator: Mike FLOYD Phone Number: 5-6653

Location / Origin: A-12 CALICHI CAS 12-01-02

Waste Category: (check one)		☐ Commercial	☒ Industrial	
Waste Type: (check one)	☒ NTS	☐ Putrescrible	☒ FFACO-onsite	☐ WAC Exception
	☐ Non-Putrescible	☐ Asbestos Containing Material	☐ FFACO-offsite	☐ Historic DOE/NV
Pollution Prevention Category: (check one)		☒ Environmental management	~~☒~~ Defense Projects	☐ YMP
Pollution Prevention Category: (check one)		☒ Clean-Up	☐ Routine	
Method of Characterization: (check one)		☒ Sampling & Analysis	~~☒~~ Process Knowledge	☐ Contents

Prohibited Waste at all three NTS landfills: Radioactive waste; RCRA waste; Hazardous waste; Free liquids, PCBs above TSCA regulatory levels, and Medical wastes (needles, sharps, bloody clothing).

Additional Prohibited Waste at the Area 9 U10C Landfill: Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos

REQUIRED: WASTE CONTENTS ALLOWABLE WASTES

Check all allowable wastes that are contained within this load:

NOTE: Waste disposal at the Area 6 Hydrocarbon Landfill must have come into contact with petroleum hydrocarbons or coolants, such as: gasoline (no benzene, lead); jet fuel; diesel fuel; lubricants and hydraulics; kerosene; asphaltic petroleum hydrocarbon; and ethylene glycol.

Acceptable waste at any NTS landfill:

☐ Asphalt	☐ Metal	☐ Wood	☒ Soil	☐ Rubber (excluding tires)	☐ Demolition debris
☒ Plastic	☐ Wire	☐ Cable	☐ Cloth	☐ Insulation (non-Asbestosform)	☐ Cement & concrete

☐ Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.)

Additional waste accepted at the Area 23 Mercury Landfill: ☐ Office Waste ☐ Food Waste ☐ Animal Carcasses

☐ Asbestos ☐ Friable ☐ Non-Friable (contact SWO if regulated load) Quantity: _____

Additional waste accepted at the Area 9 U10c Landfill:

☐ Non-friable asbestos	☐ Drained automobiles and military vehicles	☐ Solid fractions from sand/oil/water
☐ Light ballasts (contact SWO)	☐ Drained fuel filters (gas & diesel)	☐ Deconned Underground and Above Ground Tanks
☐ Hydrocarbons (contact SWO)	☐ Other _____	

Additional waste accepted at the Area 6 Hydrocarbon Landfill: ☐ _____

☐ Septic sludge	☐ Rags	☐ Drained fuel filters (gas & diesel)	☐ Crushed non-teme plated oil filters
☐ Plants	☐ Soil	☐ Sludge from sand/oil/water separators	☐ PCBs below 50 parts per million

REQUIRED: WASTE GENERAT

Initials: _____ (if initialed, no radiological clearance is necessary.)

The above mentioned waste was generated outside of a Controlled Was knowledge, does not contain radiological materials.

To the best of my knowledge, the waste described above contains only site. I have verified this through the waste characterization method ider prohibited and allowable waste items. I have contacted Property Manag is approved for disposal in the landfill.

Radiological Survey Release for Waste Disposal
RCT Initials

_____ **This container/load meets the criteria for no added man-made radioactive material**

MF **This container/load meets the criteria for Radcon Manual Table 4.2 release limits.**

_____ **This container/load is exempt from survey due to process knowledge and origin.**

SIGNATURE see original **DATE:** 5-29-08

BN-0646 (10/05)

Print Name: Mike Floyd

Signature: /s/ M Floyd Date: 5/29/08

If applicable, place FRM-0646, "Radiological Release Sticker" here. Onsite use only.

Note: "Food waste, office trash and animal carcasses do not require a radiological clearance. Freon-containing appliances must have signed removal certification statement with Load Verification."

SWO USE ONLY

Load Weight (net from scale or estimate): 500 LBS 5-29-08 Signature of Certifier: /s/ D Bickford

(2)

NSTec Form FRM-0918

NTS LANDFILL LOAD VERIFICATION

08/23/06 Rev. 0 Page 1 of 2

SWO USE (Select One) AREA ☐ 23 ☐ 6 ☒ 9 ☒ **LANDFILL**

For waste characterization, approval, and/or assistance, contact Solid Waste Operation (SWO) at 5-7898.

REQUIRED: WASTE GERERATOR INFORMATION

(This form is for rolloffs, dump trucks, and other onsite disposal of materials.)

Waste Generator: MIKE FLOYD Phone Number: 5-6653

Location / Origin: CAU 121 CAS 12-01-02 MUSTANG TANK AREA

Waste Category: (check one)		☐ Commercial	☒ Industrial	
Waste Type: (check one)	☒ NTS	☐ Putrescrible	☒ FFACO-onsite	☐ WAC Exception
	☐ Non-Putrescible	☐ Asbestos Containing Material	☐ FFACO-offsite	☐ Historic DOE/NV
Pollution Prevention Category: (check one)		☒ Environmental management	☐ Defense Projects	☐ YMP
Pollution Prevention Category: (check one)		☒ Clean-Up	☐ Routine	
Method of Characterization: (check one)		☒ Sampling & Analysis	☐ Process Knowledge	☐ Contents
Prohibited Waste at all three NTS landfills:	Radioactive waste; RCRA waste; Hazardous waste; Free liquids, PCBs above TSCA regulatory levels, and Medical wastes (needles, sharps, bloody clothing).			
Additional Prohibited Waste at the Area 9 U10C Landfill:	Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos			

REQUIRED: WASTE CONTENTS ALLOWABLE WASTES

Check all allowable wastes that are contained within this load:

NOTE: Waste disposal at the Area 6 Hydrocarbon Landfill must have come into contact with petroleum hydrocarbons or coolants, such as: gasoline (no benzene, lead); jet fuel; diesel fuel; lubricants and hydraulics; kerosene; asphaltic petroleum hydrocarbon; and ethylene glycol.

Acceptable waste at any NTS landfill:

☐ Asphalt	☐ Metal	☐ Wood	☒ Soil	☐ Rubber (excluding tires)	☐ Demolition debris	
☒ Plastic	☐ Wire	☐ Cable	☐ Cloth	☐ Insulation (non-Asbestosform)	☐ Cement & concrete	

☐ Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.)

Additional waste accepted at the Area 23 Mercury Landfill: ☐ Office Waste ☐ Food Waste ☐ Animal Carcasses

☐ Asbestos ☐ Friable ☐ Non-Friable (contact SWO if regulated load) Quantity: _____

Additional waste accepted at the Area 9 U10c Landfill:

☐ Non-friable asbestos	☐ Drained automobiles and military vehicles	☐ Solid fractions from sand/oil/water
☐ Light ballasts (contact SWO)	☐ Drained fuel filters (gas & diesel)	☐ Deconned Underground and Above Ground Tanks
☒ Hydrocarbons (contact SWO)	☐ Other _____	

Additional waste accepted at the Area 6 Hydrocarbon Landfill: ☐ _____

☐ Septic sludge	☐ Rags	☐ Drained fuel filters (gas & diesel)	☐ Crushed non-teme plated oil filters	
☐ Plants	☐ Soil	☐ Sludge from sand/oil/water separators	☒ PCBs below 50 parts per million	

REQUIRED: WASTE GENERA

Initials: _____ **(if initialed, no radiological clearance is necessary.)**

The above mentioned waste was generated outside of a Controlled W… knowledge, does not contain radiological materials.

To the best of my knowledge, the waste described above contains onl… site. I have verified this through the waste characterization method id… prohibited and allowable waste items. I have contacted Property Man… is approved for disposal in the landfill.

Radiological Survey Release for Waste Disposal

RCT Initials

____ **This container/load meets the criteria for no added man-made radioactive material**

MF **This container/load meets the criteria for Radcon Manual Table 4.2 release limits.**

____ **This container/load is exempt from survey due to process knowledge and origin.**

SIGNATURE: see original **DATE:** 6-2-08

BN-0646 (10/05)

Print Name: Mike Floyd

Signature: /s/ M Floyd Date: 6/2/08

If applicable, place FRM-0646, "Radiological Release Sticker" here. Onsite use only.

Note: "Food waste, office trash and animal carcasses do not require a radiological clearance. Freon-containing appliances must have signed removal certification statement with Load Verification."

SWO USE ONLY

Load Weight (net from scale or estimate): 6 000 (2) 6-3-08 Signature of Certifier: /s/ D Bickford

NSTec Form FRM-0918

NTS LANDFILL LOAD VERIFICATION

08/23/06 Rev. 0 Page 1 of 2

SWO USE (Select One) AREA ☐ 23 ☐ 6 ☒ 9 ☒ LANDFILL

For waste characterization, approval, and/or assistance, contact Solid Waste Operation (SWO) at 5-7898.

REQUIRED: WASTE GERERATOR INFORMATION

(This form is for rolloffs, dump trucks, and other onsite disposal of materials.)

Waste Generator: MIKE FLOYD Phone Number: 5-6653

Location / Origin: CAU 121 // CAS 12-01-02 // AREA 12

Waste Category: (check one)		☐ Commercial	☒ Industrial	
Waste Type: (check one)	☒ NTS	☐ Putrescrible	☒ FFACO-onsite	☐ WAC Exception
	☐ Non-Putrescible	☐ Asbestos Containing Material	☐ FFACO-offsite	☐ Historic DOE/NV
Pollution Prevention Category: (check one)		☒ Environmental management	☐ Defense Projects	☐ YMP
Pollution Prevention Category: (check one)		☒ Clean-Up	☐ Routine	
Method of Characterization: (check one)		☒ Sampling & Analysis	☐ Process Knowledge	☐ Contents

Prohibited Waste at all three NTS landfills: Radioactive waste; RCRA waste; Hazardous waste; Free liquids, PCBs above TSCA regulatory levels, and Medical wastes (needles, sharps, bloody clothing).

Additional Prohibited Waste at the Area 9 U10C Landfill: Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos

REQUIRED: WASTE CONTENTS ALLOWABLE WASTES

Check all allowable wastes that are contained within this load:

NOTE: Waste disposal at the Area 6 Hydrocarbon Landfill must have come into contact with petroleum hydrocarbons or coolants, such as: gasoline (no benzene, lead); jet fuel; diesel fuel; lubricants and hydraulics; kerosene; asphaltic petroleum hydrocarbon; and ethylene glycol.

Acceptable waste at any NTS landfill:

☐ Paper ☐ Rocks / unaltered geologic materials ☐ Empty containers

☐ Asphalt ☐ Metal ☐ Wood ☒ Soil ☐ Rubber (excluding tires) ☐ Demolition debris

☐ Plastic ☐ Wire ☐ Cable ☐ Cloth ☐ Insulation (non-Asbestosform) ☐ Cement & concrete

☐ Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.)

Additional waste accepted at the Area 23 Mercury Landfill: ☐ Office Waste ☐ Food Waste ☐ Animal Carcasses

☐ Asbestos ☐ Friable ☐ Non-Friable (contact SWO if regulated load) Quantity: _____

Additional waste accepted at the Area 9 U10c Landfill:

☐ Non-friable asbestos ☐ Drained automobiles and military vehicles ☐ Solid fractions from sand/oil/water

☐ Light ballasts (contact SWO) ☐ Drained fuel filters (gas & diesel) ☐ Deconned Underground and Above Ground Tanks

☐ Hydrocarbons (contact SWO) ☐ Other PCB <2PPM

Additional waste accepted at the Area 6 Hydrocarbon Landfill: ☐ _____

☐ Septic sludge ☐ Rags ☐ Drained fuel filters (gas & diesel) ☐ Crushed non-teme plated oil filters

☐ Plants ☐ Soil ☐ Sludge from sand/oil/water separators ☐ PCBs below 50 parts per million

REQUIRED: WASTE GENERATOR SIGNATURE

Initials: _____ (if initialed, no radiological clearance is necessary.)

The above mentioned waste was generated outside of a Controlled Waste Management Area (CWMA) and to the best of my knowledge, does not contain radiological materials.

To the best of my knowledge, the waste described above contains only those materia site. I have verified this through the waste characterization method identified above prohibited and allowable waste items. I have contacted Property Management and ha is approved for disposal in the landfill.

Print Name: Mike Floyd

Signature: /s/ M Floyd Date: 6/19/08

Note: "Food waste, office trash and animal carcasses do not require a radiological cle must have signed removal certification statement with Load Verification."

Radiological Survey Release for Waste Disposal

RCT Initials

NR — **This container/load meets the criteria for no added man-made radioactive material**

RS — **This container/load meets the criteria for Radcon Manual Table 4.2 release limits.**

NA — **This container/load is exempt from survey due to process knowledge and origin.**

SIGNATURE: see original **DATE:** 6-19-08

FRM-0646 (08/06)

SWO USE ONLY

Load Weight (net from scale or estimate): 3200 6/19/08 Signature of Certifier: /s/ See Original

Mike

NSTec Form FRM-0918

NTS LANDFILL LOAD VERIFICATION

(5)

08/23/06 Rev. 0 Page 1 of 2

SWO USE (Select One) AREA ☐ 23 ☐ 6 ☒ 9 ☒ **LANDFILL**

For waste characterization, approval, and/or assistance, contact Solid Waste Operation (SWO) at 5-7898.

REQUIRED: WASTE GERERATOR INFORMATION

(This form is for rolloffs, dump trucks, and other onsite disposal of materials.)

Waste Generator: MIKE FLOYD Phone Number: 5-6653

Location / Origin: CAU 121 // CAS 12-01-02 // AREA 12

Waste Category: (check one)		☐ Commercial	☒ Industrial	
Waste Type: (check one)	☒ NTS	☐ Putrescrible	☒ FFACO-onsite	☐ WAC Exception
	☐ Non-Putrescible	☐ Asbestos Containing Material	☐ FFACO-offsite	☐ Historic DOE/NV
Pollution Prevention Category: (check one)		☒ Environmental management	☐ Defense Projects	☐ YMP
Pollution Prevention Category: (check one)		☒ Clean-Up	☐ Routine	
Method of Characterization: (check one)		☒ Sampling & Analysis	☐ Process Knowledge	☐ Contents

Prohibited Waste at all three NTS landfills: Radioactive waste; RCRA waste; Hazardous waste; Free liquids, PCBs above TSCA regulatory levels, and Medical wastes (needles, sharps, bloody clothing).

Additional Prohibited Waste at the Area 9 U10C Landfill: Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos

REQUIRED: WASTE CONTENTS ALLOWABLE WASTES

Check all allowable wastes that are contained within this load:

NOTE: Waste disposal at the Area 6 Hydrocarbon Landfill must have come into contact with petroleum hydrocarbons or coolants, such as: gasoline (no benzene, lead); jet fuel; diesel fuel; lubricants and hydraulics; kerosene; asphaltic petroleum hydrocarbon; and ethylene glycol.

Acceptable waste at any NTS landfill:

☐ Paper	☐ Rocks / unaltered geologic materials	☐ Empty containers	☐ Asphalt	☐ Metal	☐ Wood	☒ Soil
☐ Rubber (excluding tires)	☐ Demolition debris	☐ Plastic	☐ Wire	☐ Cable	☐ Cloth	☐ Insulation (non-Asbestosform)
☐ Cement & concrete	☐ Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.)					

Additional waste accepted at the Area 23 Mercury Landfill: ☐ Office Waste ☐ Food Waste ☐ Animal Carcasses

☐ Asbestos ☐ Friable ☐ Non-Friable (contact SWO if regulated load) Quantity: _____

Additional waste accepted at the Area 9 U10c Landfill:

☐ Non-friable asbestos	☐ Drained automobiles and military vehicles	☐ Solid fractions from sand/oil/water
☐ Light ballasts (contact SWO)	☐ Drained fuel filters (gas & diesel)	☐ Deconned Underground and Above Ground Tanks
☐ Hydrocarbons (contact SWO)	☒ Other <2ppm for PCB	

Additional waste accepted at the Area 6 Hydrocarbon Landfill: ☐ _____

☐ Septic sludge	☐ Rags	☐ Drained fuel filters (gas & diesel)	☐ Crushed non-teme plated oil filters
☐ Plants	☐ Soil	☐ Sludge from sand/oil/water separators	☐ PCBs below 50 parts per million

REQUIRED: WASTE GENERATOR SIGNATURE

Initials: _____ (if initialed, no radiological clearance is necessary.)

The above mentioned waste was generated outside of a Controlled Waste Management Area (CWMA) and to the best of my knowledge, does not contain radiological materials.

To the best of my knowledge, the waste described above contains only those mat[illegible] allowed for disposal at this site. I have verified this through the waste characterization method identified abo[illegible] prohibited and allowable waste items. I have contacted Property Management an[illegible] is approved for disposal in the landfill.

Print Name: Mike Floyd

Signature: /s/ M Floyd Date: 7/10/08

Note: "Food waste, office trash and animal carcasses do not require a radiologica[illegible] must have signed removal certification statement with Load Verification."

Radiological Survey Release for Waste Disposal

RCT Initials

___ This container/load meets the criteria for no added man-made radioactive material

X This container/load meets the criteria for Radcon Manual Table 4.2 release limits.

___ This container/load is exempt from survey due to process knowledge and origin.

SIGNATURE: see original **DATE:** 7/10/08

NTS/0646 (08/06)

SWO USE ONLY

Load Weight (net from scale or estimate): 28,720 7/10/08 Signature of Certifier: /s/ D Bickford

APPENDIX D

SITE CLOSURE PHOTOGRAPHS

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PHOTOGRAPH LOG

PHOTOGRAPH NUMBER	DATE	CORRECTIVE ACTION SITE	DESCRIPTION
1	02/13/2008	12-01-01	Aboveground storage tank after rolling to allow sampling, before removal
2	02/13/2008	12-01-01	Aboveground storage tank removal
3	02/13/2008	12-01-01	Corrective Action Site after completion of field activities
4	02/13/2008	12-01-02	Aboveground storage tank before field activities
5	05/29/2008	12-01-02	Aboveground storage tank location after tank removal, during excavation
6	06/02/2008	12-01-02	Excavation sample locations
7	07/10/2008	12-01-02	Final excavation showing proximity to Area 12 Camp water tank and surrounding access pad
8	07/10/2008	12-01-02	Final excavation fairly representative of surface slope of volcanic tuff. Rocks within excavated area are fragments of tuff that were broken off by the backhoe.
9	09/15/2008	12-01-02	Corrective Action Site after completion of field activities
10	03/26/2008	12-22-26	Aboveground storage tank before start of field activities
11	04/17/2008	12-22-26	Aboveground storage tank removal
12	04/15/2008	12-22-26	Drum area, gridded and marked for sample collection
13	04/15/2008	12-22-26	Sample location when tank was located to the north of the operational tank area
14	04/15/2008	12-22-26	Tank area marked for sample collection when tank was operational, near train tracks

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Photograph 1. CAS 12-01-01: Aboveground storage tank after rolling to allow sampling, before removal (02/13/2008)

Photograph 2. CAS 12-01-01: Aboveground storage tank removal (02/13/2008)

Photograph 3. CAS 12-01-01: Corrective Action Site after completion of field activities (02/13/2008)

Photograph 4. CAS 12-01-02: Aboveground storage tank before field activities (02/13/2008)

Photograph 5. CAS 12-01-02: Aboveground storage tank location after tank removal, during excavation (05/29/2008)

Photograph 6. CAS 12-01-02: Excavation sample locations (06/02/2008)

Photograph 7. CAS 12-01-02: Final excavation showing proximity to Area 12 Camp water tank and surrounding access pad (07/10/2008)

Photograph 8. CAS 12-01-02: Final excavation fairly representative of surface slope of volcanic tuff. Rocks within excavated area are fragments of tuff that were broken off by the backhoe. (07/10/2008)

Photograph 9. CAS 12-01-02: Corrective Action Site after completion of field activities (09/15/2008)

Photograph 10. CAS 12-22-26: Aboveground storage tank before start of field activities (03/26/2008)

Photograph 11. CAS 12-22-26: Aboveground storage tank removal (04/17/2008)

Photograph 12. CAS 12-22-26: Drum area, gridded and marked for sample collection (04/15/2008)

Photograph 13. CAS 12-22-26: Sample location when tank was located to the north of the operational tank area (04/15/2008)

Photograph 14. CAS 12-22-26: Tank area marked for sample collection when tank was operational, near train tracks (04/15/2008)

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APPENDIX E

NEVADA DIVISION OF ENVIRONMENTAL RESTORATION COMMENT RESPONSE FORM

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NEVADA ENVIRONMENTAL RESTORATION PROJECT
DOCUMENT REVIEW SHEET

Document Title/Number: Closure Report for Corrective Action Unit 121: Storage Tanks and Miscellaneous Sites, Nevada Test Site, Nevada

Document Date: August 2008

Revision Number: 0

Author/Organization: NSTec

Responsible NNSA/NSO ERP Federal Sub-Project Director: Kevin Cabble

Date Comments Due: September 2008

Review Criteria: Full

Reviewer/Organization/Phone: Dennis Nicodemus/NDEP/486-2850 ext. 237

Comment Number/ Location	Type[a]	Comment	Comment Response
1. GENERAL	**M**	Use more concise language. Throughout the document a phrase similar to "excavated and disposed of properly" was used when "excavated and disposed properly" would be more concise and easier to read.	All instances of phrases similar to "excavated and disposed of properly" were changed to when "excavated and disposed properly." In addition, several sections were re-written to be more concise.
2. GENERAL	**M**	Provide tabs for appendices.	Tabs have been provided for appendices.
3. GENERAL	**M**	Table 3, page 11, Use same font as other tables in the document.	The fonts in all tables in the document were updated for consistency.
4. Executive Summary, 4th paragraph	**M**	Restate the first sentence. Definitive evidence was not found showing the detected compounds were from another source (no explanation given for PCBs). Suggest using "likely" or "probable" as done in other sections.	The paragraph was re-written as follows: "At CAS 12-01-02, polychlorinated biphenyls (PCBs) were present above the preliminary action level (PAL) in the soil beneath the AST that could possibly have originated from the AST contents. Therefore, PCBs were considered COCs, and the site was clean closed by excavating and disposing soil containing PCBs. Approximately 5 cubic yards (yd^3) of soil were excavated and disposed as petroleum hydrocarbon PCB remediation waste, and approximately 13 yd^3 of soil were excavated and disposed as PCB remediation waste. Cleanup samples were collected to confirm that the remaining soil did not contain PCBs above the PAL. Other compounds detected in the soil above PALs (i.e., total petroleum hydrocarbons [TPH] and semi-volatile organic compounds [SVOCs]) were determined to not likely have originated from the tank. Additional sample results showed that the compounds were likely present as a result of degraded asphalt around the adjacent, active water tank and not from the abandoned AST; therefore, they were not considered COCs. As a BMP, the empty AST was removed and disposed as sanitary waste." In addition, all sections related to this comment have been re-written in a similar fashion.
5. Section 2.1.2.2, page 16, First paragraph	**M**	Use correct value for dibenz(a,h)anthracene (.27 mg/kg).	The sentence was re-written, and the sample result is no longer called out in the text.

[a] Comment Types: M = Mandatory, S = Suggested

Comment Number/ Location	Type[a]	Comment	Comment Response
6. Section 2.1.2.2, page 16, Third paragraph	**M**	Reference photos in Appendix D and/or include a diagram showing the subsurface slope and tuff area.	The following sentence was added to the paragraph: "The slope of the volcanic tuff was planar and to the south, as illustrated in Photograph 8 in Appendix D."
7. Section 2.1.2.2, page 16, Fifth paragraph	**M**	Provide a viable reference(s) for relationship between benzo(a)pyrene and dibenz(a,h)anthracene to asphalt materials.	The following was added to the paragraph: "Dibenz(a,h)anthracene and benzo(a)pyrene are known components of asphalt (Irwin, 1997; U.S. Department of Health and Human Services, 2005; EPA, 2008). In addition, background samples of asphalt material collected during CAU 219 corrective action investigation activities contained dibenz(a,h)anthracene and benzo(a)pyrene (NNSA/NSO, 2006a). Based on CAU 219 sample results and the pervasive nature of this material in the vicinity of CAS 12-01-02, the determination was made that the source of the compounds is likely asphalt-type material." The references have been added to the reference section of the document as: Irwin, R. J., M. VanMouwerik, L. Stevens, M.D., Seese, and W. Basham, 1997. *Environmental Contaminants Encyclopedia.* National Park Service, Water Resources Division. Fort Collins, CO. U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office, 2006a. *Corrective Action Decision Document/Closure Report for Corrective Action Unit 219: Septic Systems and Injection Wells Nevada Test Site, Nevada.* DOE/NV--1125. Las Vegas, NV. U.S. Department of Health and Human Services, 2005. "Polycyclic Aromatic Hydrocarbons, 15 Listings," *Report on Carcinogens, Eleventh Edition.* Public Health Service, National Toxicology Program. Washington, D.C. U.S. Environmental Protection Agency, 2008. *Consumer Factsheet on: BENZO(A)PYRENE*. Available at: http://www.epa.gov/ogwdw000/contaminants/dw_contamfs/benzopyr.html. [September 18, 2008].

[a] Comment Types: M = Mandatory, S = Suggested

Comment Number/ Location	Type[a]	Comment	Comment Response
8. Section 4.1.3, page 31, Third paragraph	**M**	NDEP disagrees with the conclusion to use the primary Conceptual Site Model. There was likely a spill in the tank vicinity (i.e., PCBs) which were removed and disposed properly. Therefore the alternative CSM would be appropriate.	The paragraph was replaced with the following: "CAS 12-01-02, Aboveground Storage Tank: The primary CSM for this site consisted of a tank with no release of its contents (i.e., deposited at the site empty). The alternate CSM consisted of a tank with a release of its contents. The alternate CSM was found to be more applicable due to the presence of PCBs exceeding the PAL that may possibly have originated from the tank contents. TPH and SVOCs present at the site were likely associated with asphalt and are not considered COCs for this site."
9. Section 4.1.3, page 31, Fourth paragraph	**M**	Reword the last two sentences to conclude that degraded asphalt is the likely source of remaining contamination.	The third and fourth paragraphs of the section have been replaced with the following: "CAS 12-01-02, Aboveground Storage Tank: The primary CSM for this site consisted of a tank with no release of its contents (i.e., deposited at the site empty). The alternate CSM consisted of a tank with a release of its contents. The alternate CSM was found to be more applicable due to the presence of PCBs exceeding the PAL that may possibly have originated from the tank contents. TPH and SVOCs present at the site were likely associated with asphalt and are not considered COCs for this site."
10. Section 5.1, page 33, Second bullet	**M**	Again, definitive evidence was not shown to link the asphalt and detected compounds. Do not state it as being a fact.	The paragraph was replaced with the following: "CAS 12-01-02, Aboveground Storage Tank, consisted of one empty AST and associated impacted soil, if any. Sample results showed that PCBs exceeded the PAL in the soil beneath the AST. PCBs could possibly have originated from the AST contents; therefore, PCBs were considered COCs, and clean closure was chosen as the corrective action alternative. Approximately 5 yd^3 of soil were excavated and disposed as petroleum hydrocarbon PCB remediation waste, and approximately 13 yd^3 of soil were disposed as PCB remediation waste. Cleanup samples were collected to confirm that the remaining soil did not contain PCBs above the PAL. Benzo(a)pyrene, dibenz(a,h)anthracene, and TPH were also present above the PALs. Sample results indicated that the degraded asphalt adjacent to the site and surrounding the Area 12 Camp water tank was the likely source of these compounds; therefore, they were not considered COCs. As a BMP, the empty AST was removed and disposed as sanitary waste."

[a] Comment Types: M = Mandatory, S = Suggested

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